Reclaimed Water Program
Demonstration Phase

Identification of Potential Satellite Projects for Direct Non-Potable Uses

Appendices

KING COUNTY
Department of
Natural Resources

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Contents

* TM AWSA 200 containing the Future Regional Wastewater Treatment Plant evaluation is located in Appendix D.

King County Water Reuse Program

Public Outreach Strategy

Final Draft
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INTRODUCTION

King County is continuing to develop its Water Reuse Program as part of its regional wastewater management responsibility. Currently, King County produces reclaimed water for irrigation and wastewater treatment plant process purposes. The County is working with agencies throughout the region to identify and evaluate additional potential uses for reclaimed water. This planned reuse of treated, municipal wastewater is being addressed by King County Department of Natural Resources (KCDNR) in a thoughtful and deliberate manner. Initially, water reuse will focus on non-potable applications such as irrigation and industrial uses. The Water Reuse Plan will be evaluated and carefully weighed prior to proceeding to the next phase or other beneficial uses.

Developing and maintaining a partnership with the community is an important factor in ensuring the timely completion and long-term success of any new infrastructure project. (The term community is used here to represent the various groups and individuals, including key stakeholders such as agencies, elected officials, businesses or property owners, representatives of a particular interest, etc.). Investing in a partnership with the community at the early stages enables an agency to identify important community goals and values and incorporate them into the program's planning and design. Informing and involving the public prior to any construction activity on a specific project establishes community-based support and ownership. It also allows a project team to anticipate and respond to community concerns in a timely manner, and prevents unnecessary project delays or even project derailment.

Public involvement is an ongoing and constantly changing endeavor. King County continues to demonstrate its commitment to building the public's trust by designing an outreach strategy that is fair, allows for two-way communication, solicits honest community feedback and incorporates input into the final program or project design. A successful public outreach strategy and the public involvement activities inherent in it will identify and include a variety of stakeholders and others with an interest in the project and anticipate or address concerns and issues they may raise. It must also remain flexible enough to respond to unforeseen challenges and opportunities.

The Public Outreach Strategy was developed with input from the Reclaimed Water Task Force Public Outreach Subcommittee and prepared by Katz & Associates, Inc. and CH2M Hill. Members of the subcommittee include:

Al Dietemann, Seattle Public Utilities
Guillemette Regan, Seattle Public Utilities
Cynthia Driscol, Shoreline Water District
Richard Palmer, University of Washington
Kathy Cupps, Washington State Department of Ecology
Gwenn Maxfield, Woodinville Water District
Tom Fox, King County Department of Natural Resources

BACKGROUND

As the twelfth most populous county in the nation, King County is a model of effective and efficient leadership in providing quality services for more than 1.5 million people extending over 2,200 square miles. Among the public needs that King County is responsible for are public health and safety, housing, transportation, education, environmental protection, economic growth and stability, and infrastructure. These services are provided to all King County residents through various departments, overseen by the Metropolitan King County Council – the legislative branch of county government with Council members representing distinct geographic districts and a King County Executive who serves as the elected executive officer of County government.

Overseen by the County Executive and County Council, the King County Department of Natural Resources (KCDNR) is responsible for wastewater services and the associated water quality standards. KCDNR also recognizes the need of water utilities and other water managers to meet the increasing water supply challenges that accompany planned population growth and expansion in an environmentally sensitive region. Although drinking water service is neither provided nor being considered by KCDNR, the department clearly recognizes that wastewater issues are closely linked with other water resource and water quality concerns.

Throughout the Puget Sound region, the demands to provide quality drinking water while meeting increasing environmental regulatory requirements are mounting. KCDNR has developed a series of plans that offer various solutions and alternatives, including a Regional Wastewater Services Plan (RWSP). Included in the RWSP is one potential solution that can ease the pressure on increasing water supply demands: water reuse. Water reuse is the process of treating municipal wastewater to higher quality levels in order to produce reclaimed water, which is safe for virtually all uses except drinking. King County is studying water reuse options and will proceed to evaluate the health and safety, environmental and water supply impacts of the full range of water reuse options from non-potable to indirect potable water reuse.

In 1997, KCDNR teamed with the Regional Water Quality Committee, the Metropolitan Water Pollution Abatement Advisory Committee, the Citizens' Water Quality Advisory Committee, City of Seattle staff, Suburban Cities Association, King and Snohomish County local sewer and water district staffs, and the Executive Advisory Committee to develop the Regional Wastewater Services Plan (RWSP), adopted by the King County Council. The Plan primarily explored central strategies dealing with plant expansion and siting, but it also contained alternatives and opportunities for the reuse of treated wastewater as one of several effective water management strategies for King County. Having undergone a series of public reviews prior to being adopted, the Plan's implementation was carried out with the continued involvement from various organizations and community groups throughout the County. A first step in the implementation of the RWSP is the development of a reclaimed water work program that includes evaluation of various water reuse opportunities.

As the Plan was being developed, a Water Reuse Policy Task Force was created by KCDNR to assist in better defining the role of reclaimed water use. Members of the Task Force represented the Association of Sewer and Water Districts, the Cascade Water Alliance, the City of Everett, the City of Seattle, KCDNR, the State of Washington Departments of Health and Ecology, and suburban cities. The need statement adopted by the Water Reuse Policy Task Force in 1997 said in part:

> *"Recycling and reusing highly treated wastewater effluent should be investigated as a significant new source of water to help increase base flows for fish in the summer, provide additional flushing flows for smolts in the spring, supply additional water for the Region's non-potable uses and defer the need to develop new potable water supply projects."*

Current Reclaimed Water Task Force

More recently, KCDNR established a Reclaimed Water Task Force to build on the work of the previous task force. According to the mission statement adopted by the current task force, they "will explore policy and technical issues related to initial implementation of the reclaimed water program." It will provide recommendations to the County on the following issues, as noted in the task force mission statement:

- Identifying pilot projects that demonstrate early success for the reclaimed water program, advance the vision of providing benefits to the region's environment and people, and defer the need for new potable water supply projects.
- Providing recommendations to the County on both technical and policy-level issues raised by the implementation of a reclaimed water program.

In addition, the task force adopted specific implementation strategies:

- The Task Force will recommend criteria for siting and selecting appropriate pilot projects that are consistent with its mission.
- The Task Force will establish working committees to help explore and articulate the diverse regional perspective on policy issues.
- The Task Force will assist the County in establishing a methodology to evaluate the financial implications of the program, based on information gained from early pilot or demonstration projects.
- Oversee development of monitoring and end-use products.

The Task Force's broad representation of various disciplines and backgrounds includes stakeholders and others representing financial, legal, regulatory, engineering, environmental, academic, municipality, county, state, and utility perspectives. The Task Force will help the County explore reclaimed water options and a subcommittee of the task force participated in the development of the public outreach strategy.

SITUATION ANALYSIS

In a region widely known for its water resources and abundant rainfall, planning for water reuse may seem incongruous. Yet, the need to protect salmon and other aquatic species combined with the reality of continuing urban growth and development in the region provides ongoing water resource management challenges. Reuse can have a valuable role in helping to meet some of these challenges. As directed in the RWSP, KCDNR will continue the process of evaluating the potential uses of reclaimed water throughout the region. This process has multiple phases: it will begin with evaluation of the use of reclaimed water for such non-potable applications as irrigation and industrial uses and eventually the use of reclaimed water to augment streams, groundwater and lakes will be studied and evaluated.

Among potential roles for reuse in the region are:

- Diversification and balance of water supply sources to maintain the quality of life, fish and wildlife habitat, recreational opportunities and economic vitality.
- Extension of the conservation ethic adopted in the region: water is a precious natural resource and all water - including reclaimed water - should be used wisely.
- Help ensure a sustainable community.
- Provide a drought resistant water supply source.

Last year, KCDNR began identifying a variety of potential reclaimed water projects across the county. Public and private parties have been asked to submit written project nominations expressing interest in joining with KCDNR to implement water reuse projects. KCDNR's goal is to construct one or more satellite facilities to provide reclaimed water for non-potable industrial and/or irrigation purposes.

As stated previously, the water reuse program is proposed to be implemented in a thoughtful, methodical and phased process. The first phase of the water reuse evaluation process is to use reclaimed water for non-potable irrigation and industrial uses. During subsequent phases, KCDNR will evaluate the discharge of reclaimed water for surface water augmentation and groundwater recharge. Ultimately, the water reuse program will study the discharge of reclaimed water to Lake Washington. Finally, if reclaimed water is introduced into Lake Washington, further evaluation will take place to determine if Lake Washington should serve as a source of drinking water for the region.

Throughout the evaluation process, KCDNR intends to obtain public and stakeholder input to ensure that community values are considered and included in the evaluation and development of the water reuse program. The public outreach strategy will incorporate an educational component to ensure that groups, organizations and individuals in the region will be equipped to participate in the public debate and become involved in the design and implementation of reclaimed water projects.

PUBLIC INVOLVEMENT PURPOSE & GOALS

Increasingly the public is demanding more input in matters that affect their health, their community or their budget. Water reuse can affect all of these. A results-oriented public outreach strategy and associated public involvement activities, like the ones described later in this plan, must provide opportunities to discuss issues before decisions are made so that community values are a part of the evaluation process. But to be successful, public outreach programs must be consistent and sustained – requiring significant time and effort. When undertaking public involvement activities for a specific project, it is imperative to first identify public involvement goals, the role the public will play and the methodologies that will be used. This ensures that expectations of the public, as well as those of King County, will be understood.

This Water Reuse Program public outreach strategy seeks to increase public education about water reuse and build broad-based community awareness of reclaimed water as a viable supplemental water resource that benefits the entire Puget Sound region. Public acceptance and support for the program will be a key factor in ensuring the project's timely completion and overall success. As a result, the development of a Water Reuse Program that includes satellite plants must include public input at key decision-making points and demonstrate an overall sensitivity to public issues and concerns.

The public outreach strategy outlined in this plan takes into account immediate needs associated with satellite plants while recognizing the importance of a regional outreach program to the long-term success of water reuse. Thus, specific neighborhood interests and concerns must be addressed at the same time the project team is laying the groundwork for long-term, regional awareness. Such short- and long-term outreach strategies will have a different focus and work to meet distinct goals, but they must also complement and support each other.

Short-Term Goals

- Lay the groundwork for a "no surprises" approach to water reuse program implementation in the region.

- Ensure proper coordination with other on-going initiatives such as the Salmon Recovery Program, the North Treatment Plant, and the Central Puget Sound Water Suppliers Forum Reuse Subcommittee.

- Identify, recognize and effectively address questions and concerns posed by local stakeholders.

- Provide opportunities in satellite plant communities for participation in community forums or workshops to discuss community questions and concerns about various design and construction issues.

- Assist field staff with project implementation once a site is selected.

- Work with cities, districts and regulatory agencies to address their concerns about projects in their jurisdictions.

- Gather public and stakeholder input to help guide the development of the long-term reuse program.

Long-Term Goals

- Increase awareness and understanding of water reuse and involve the public in finding water reuse options that make sense for the Puget Sound region.

- Educate the public on the purpose and need for water reuse as a safe and reliable complement to regional conservation activities.

- Develop and maintain support from key stakeholders (environmental, business, utilities, agricultural, academic, scientific, regulatory, etc.). Communicate this support to the public through a variety of tactics: community outreach (speaking at public meetings, letters of support, testimonials, etc.), media relations (op-ed articles, letters to the editor, etc.) and governmental relations (resolutions of support, endorsements, etc.).

- Coordinate water reuse public outreach planning and activities with other regional outreach programs -- specifically, the Salmon Recovery Program, water supply planning, ESA and the County's North Treatment Plant planning -- in order to minimize duplication of efforts.

- Foster accurate and favorable media coverage for the project through regular briefings with key reporters and strategic release of information about project milestones.

- Implement tactics in a timely manner to ensure there are "no surprises."

- Convey KCDNR's sensitivity to endangered species act requirements and the needs of the salmon population.

- Communicate public and stakeholder sensitivities and concerns to elected officials prior to a decision point.

OUTREACH PROGRAM ISSUES

There are a number of specific issues that KCDNR must address as outreach for the Water Reuse Program unfolds. These issues can pose serious challenges or opportunities affecting the Program's ultimate outcome. In addition, there are a number of other infrastructure projects competing for the public's attention at the same time. It will be important to coordinate the Water Reuse Program public outreach with other infrastructure project outreach efforts.

The major issues related to this Program are listed below under the following categories (with some issues actually affecting all categories):

I. Public Health and Safety
II. Public Acceptance
III. Environmental
IV. Operational

I. Public Health and Safety

The health and safety of using reclaimed water is a key program issue. Thus the Program Team must be prepared to address water quality issues and educate the public about the basics of reclaimed water and associated complex details. Easy to understand data that can demonstrate to the public their health is not at jeopardy -- either from the product water itself or from using or playing in areas where reclaimed water is applied - must be available for those who have specific questions, and should also be included in informational materials.

In addition, KCDNR will have to provide information that demonstrates the Water Reuse Program meets all necessary permit requirements and state Department of Health and Department of Ecology criteria.

II. Public Acceptance

Public acceptance can be the factor that makes or breaks a water reuse program. Health and safety, as described above, will play a large role in public acceptance, as will the following areas of concern.

Environment. The health of the environment is a key issue in the Puget Sound region. The Water Reuse Program must demonstrate that it is environmentally sensitive and sound and can

provide environmental benefits. For example, using reclaimed water to irrigate large turf areas or golf courses could reduce the amount of potable water that would need to be withdrawn from a river or stream for this purpose, thus resulting in a net environmental benefit to the region.

Growth. Growth issues may also affect the public's perception about this Program. There will likely be public discussion on the issue of whether water resources accommodates or encourages regional growth. In a growing region it will also be important to discuss the benefits of creating a diversity of water resource options. Some members of the public may need to be assured that this Program does not compromise the quality, quantity or safety of potable water supplies.

Local impacts. Along with overall growth impacts in the County, site- and use-specific impacts will also be a factor. Neighbors will want to know if a satellite plant will mean growth in their community, cause odor problems or create some sort of risk. Others may be concerned about why their community was selected, or "targeted," for this program and thus geographic distribution of the facilities and product water needs to be addressed. Residents may also be concerned about using parks, play fields or other areas that are irrigated with reclaimed water and their questions must be addressed.

Cost. Some audiences will want to know what kind of impact this program will have on rates, and more specifically who pays for this new resource (i.e. "Why am I paying for water recycling when you are making money off of it?"). Other cost related questions may include whether it is possible to leverage reclaimed water as a way to decrease wastewater treatment costs, or if the strategy of constructing satellite plants may reduce or increase transmission costs. These kinds of cost-related questions provide valid reasons to explore the use of reclaimed water. However, others may take a more general approach and ask if this is a wise use of public money. Users also may be concerned about liability issues that could arise for them. Finally, it will be important to put forth consistent information about the costs associated with the program. Thought should be given to potential increases from inflation or unanticipated issues prior to committing to a total project cost. Any change in cost will be perceived as an increase. The costs and benefits of water reuse will be thoroughly explored and available for review as the Program moves forward for approval. This analysis will include private sector participation, long term costs and other related issues. In addition, there will be multiple opportunities for public and stakeholder input related to cost issues.

Information availability. Providing information and answering any questions that arise will be key for earning public acceptance. When the public knows something is happening, but does not have any specific information on what it is or any resources to have their questions answered, the tendency is to assume that it is a negative or harmful project. Some may wonder whether there is some sort of hidden agenda involved, while others may conclude that they don't support this program simply because it is being kept a secret. Thus, it will be important to discuss all issues related to reclaimed water openly with the public – including the tough questions, such as what kinds of emergency response systems are in place in case? Finally, in order for KCDNR to answer questions and keep the community informed, it must first identify points of contact at the agencies involved. The entity the public can go to if they have questions or concerns must be clearly defined to ensure easy availability and consistency of information. Regular "team" meetings among those with public information duties will help ensure issues are being addressed.

III. Environmental

While the importance of addressing environmental concerns in order to gain public acceptance is addressed in the previous section, there are more specific environmental issues that may not concern the public-at-large but are still important since they will impact one of the Program's key audiences.

The environmental community will require water quality information that deals specifically with the local streams and rivers and the conditions this Program will create for the protection or enhancement of fish and other wildlife in their habitats. This audience will also require more specific data on the possibility of increasing water levels in local streams and rivers for fish populations. They will also want to know not just how much more water will be available, but the quality of the water and what studies exist to determine its effect on introducing it into the environment.

The environmental community will also require more detail on meeting permit requirements, as well as data relevant to the environmental impact documents and regulations.

IV. Operational

While operational issues are largely internal to KCDNR and regional utilities, the Program Team must be prepared to discuss them with the public, especially having a program that is on time, on schedule, within budget parameters and integrated with existing programs. The goal of building by 2004 may raise concerns, and geographic distribution may also be an operational factor that creates some questions described above. This strategy recommends including "managing change" as a regular, on-going activity. It will be important to assess whether key stakeholders or community/interest groups feel their concerns are being addressed and they are not being "left behind" in order for the Program Team to meet a schedule.

There are operational permit issues to address, as well as the nuts and bolts of leveraging reclaimed water with existing wastewater treatment facilities. But in the end, the public will need to be assured that the Program will produce projects that are operable, reliable affordable and make good sense.

GENERAL & SITE-SPECIFIC OUTREACH

Short- and long-term goals are discussed in a previous section of this document as useful distinctions for this public outreach strategy. In the same light, the public outreach strategy should differentiate between general and site-specific outreach efforts.

General outreach efforts refer to the strategies and tactics utilized for the region at large and that address the need to make regional decisions related to water reuse. While it is important to identify specific audiences within the County, general outreach will primarily consist of educational water reuse messages that address broad issues. For example, general outreach will focus on the benefits of water reuse for King County as a whole – looking at the satellite plants in specific communities as components to overall water resource management.

Site-specific efforts refer to outreach conducted with communities in which the satellite plants and reuse areas may be located. This type of outreach is focused on a specific target audience and set of messages based on the needs and concerns of a particular community. Some of the strategies and tactics proposed in this plan focus on partnering with site-specific communities to determine the exact locations for satellite plant sites, address construction issues, evaluate various alternatives for the satellite plants and work on any additional issues that may arise for a specific location.

While it is important to differentiate between general and site-specific efforts, some of these activities will be occurring at the same time, with an overlap of common elements. All general efforts are applicable to site specific efforts. Site specific efforts emphasize communities with satellite plants or that will use reclaimed water. For example, many of the materials that will be created will be general outreach pieces, but they can be refined, if necessary, to include information related to a specific site. Likewise, while the media outreach strategies are part of a more regional approach, it will be necessary to target a specific newspaper during the same time frame in order to ensure coverage of site-specific issues.

Some specific examples of general versus site-specific outreach tactics are outlined below. These examples represent corresponding efforts that will be similar for both approaches, and may be occurring at the same time.

GENERAL	SITE-SPECIFIC
• Brief the King County Council on the Water Reuse Program	• Brief specific city's councils and individual members on the Program's effects in his/her district or city
• Conduct tour of water reclamation facilities similar to those proposed in King County for regional leaders	• Conduct a tour of a similar plant as the one proposed for a satellite plant or of proposed sites for satellite plants for community members where the satellite plant is proposed to be located
• Make a presentation as part of a board meeting for a county-wide organization	• Make presentations to neighborhood groups and key stakeholders
• Create and distribute informational materials that discuss the Program in general terms to audiences throughout the County	• Revise general information materials to include site-specific messages and distribute to neighborhoods and businesses in satellite plant areas
• Work with water and sewer utilities in the region to inform their customers about reuse as a way to diversify water management options and the advantages to be gained from water reuse	• Work with local municipalities and districts to distribute mailers to residents or businesses in a specific neighborhood that contain information about a local meeting or construction issue related to a proposed satellite plant or in the vicinity of a proposed public use area

AUDIENCES

In order to increase the public's awareness and education about water reuse, individual audiences must be identified. Once a comprehensive audience list has been developed, an effective strategy to reach the general public is to identify and educate key leaders and organizations that represent a broad base of interests throughout the region and utilize a "trickle-down" method of message distribution. As presentations are made and information is provided to opinion leaders and organizations, they will, in turn, be able to provide information to their friends, neighbors or membership. The key step in this process is to provide the necessary information to assist community members, elected officials, and other interested parties to make informed decisions or evaluations about water reuse and create a two-way information exchange with target audiences.

Apart from the distinct external audiences, there also exists an internal KCDNR audience, which must be communicated with effectively from the outset. Because the Program's internal audience will come into contact with or be approached by external audiences, these people must be knowledgeable about water reuse benefits, plans and know where to get additional information. By relaying information to the internal audience first, more qualified voices will be included in the community education process and there may not be a need to backtrack and repair misinformation from an internal source that should have been up-to-date. For this reason, some of the tactics discussed in this document involve partnering sessions with King County and KCDNR staff that will form the Program Team, as well as training opportunities to assure messages are conveyed effectively to different audiences.

Following is an initial list of the types of audiences (listed below in no order of priority) with whom KCDNR will need to communicate. During specific planning phases this list will be refined and a database will be developed that will contain specific names and organization titles. The database will form the core of the "interested parties list" – the individuals and organizations that will be contacted for stakeholder interviews, placed on a newsletter mailing list, etc.

I. Internal
II. Community
III. Government
IV. Environmental
V. Recreation
VI. Business
VII. Schools
VIII. Agriculture
IX. Media
X. Other

KEY AUDIENCES

I. INTERNAL

- KCDNR leadership
- Project manager
- Cross-team (internal group in King County)
- Operations management and staff
- DRPP / Budget office
- Task Force members

II. COMMUNITY

Site-affected interests

- Neighbors in selected satellite plant sites
- User groups for parks etc
- Businesses in selected satellite plan sites
- Neighborhood associations
- Communities downstream of plants
- Community leaders
- Schools in affected areas
- Elected officials representing affected areas
- Local media covering or located in affected areas
- Specific groups, such as Bear Creek Community Council
- Property owners

"Good Government" Civic Groups

- League of Women Voters
- Taxpayer's Groups
- Local planning organizations
- Civic organizations
- Regional opinion leaders

III. GOVERNMENT

- County Executive
- County Council
- Elected and appointed officials (State, federal and other local officials)
- Tribal governments
- Water suppliers and water and sewer districts and associations
- State departments (Ecology, Health, Department of Natural Resources, DCTED)
- ESA agencies (National Marine Fisheries Service, Army Corps, EPA, etc)
- Conservation districts
- Watershed steering committees
- Snohomish County
- Central Puget Sound Water Supplier Forum

IV. ENVIRONMENTAL

- Specific environmental groups (Sierra Club, Audobon Society, Friends of the Earth, Save Lake Sammamish, etc)
- Regulatory agencies
- Parks and resource lands

V. RECREATION

- Golfers
- Youth sporting leagues
- Sports fishers and other fishing organizations, such as Trout Unlimited
- Other "outdoorsmen/women" including boaters and other water contact or water related interests.
- Groups that will be identified when specific uses are chosen.

VI. BUSINESS

- Large water users
- Reclaimed water customers and users
- Large businesses and industry
- Chambers of Commerce and other business associations
- Economic development groups
- Builders' association and related groups

VII. SCHOOLS

- County schools (K-12)
- Private schools
- University of Washington
- Community Colleges
- Parents
- Students
- Faculty and Administrators

VIII. AGRICULTURE

- Local farmers
- Irrigation districts
- Farm suppliers
- Agricultural organizations
- Nurseries and landscaping associations

IX. MEDIA

- Local media (TV, radio, newspapers)
- Regional media (TV, radio, newspapers)
- Community newspapers
- Trade media
- Organization's newsletters as a form of media
- Internet sites interested in water reuse/environmental issues

X. OTHER

- Labor unions
- Medical community

WHAT'S IN IT FOR ME?

Simply breaking down target audiences is not enough. The real challenge lies in identifying the particular interests of those groups or individuals assessing what is important to them about the project, issue or activity in question. KCDNR should be prepared to identify the WIIFM ("What's in it for me?") specifics so it can tailor its messages to the interests of different persons and groups. This is especially important with the site-specific factor of satellite plants.

By understanding the goals of individual audiences, KCDNR can identify how its projects are important to them, help to meet mutual goals, and relay a specific, targeted message along with general messages about water reuse. For example, when a general location for a satellite plant is identified, several target audiences with unique perspectives will be interested:

1. Residents or businesses adjacent to the site – This group would likely be most concerned with specific issues such as health and safety concerns related to an operating treatment plant, aesthetic issues such as odor control, where overflow discharges will go, design of the plant and whether it will fit into the overall neighborhood, etc.

2. Residents and businesses in the vicinity and reuse sites - This group would likely be most concerned with specific issues such as health and safety related to using the sites where reclaimed water is applied.

3. Local elected and appointed officials – For many reasons, not the least of which is that constituents will express their concerns, local officials must be aware of the scope of a project, level of support within the community, construction schedules, and contact information for referral of inquiries.

4. Area businesses – Any time a facility is constructed in an area that includes operating businesses, there are concerns about the impacts on major roadways, access to businesses during operating hours, etc. If the business is a potential reclaimed water user, there may

also be concerns about procedures related to switching to reclaimed water, costs of infrastructure improvements necessary for a business to use reclaimed water, safety issues related to their workforce or product, etc.

5. Environmental interests – Because of the awareness and appreciation of environmental values in the Puget Sound region, members of environmental organizations and individual citizens will have concerns about the impact of reclaimed water on streams and rivers in the region, fish population and habitat. Even though a project is specific to one location, the larger "environmental community" may be intensely interested in region-wide impacts.

6. Native American tribes – Representatives of Native American tribes have already identified impacts on fish population as an area of interest. Consequently, communication efforts must include this important audience to ensure their needs have been considered and addressed, regardless of the location of the plant.

These are but a few of the many audiences that will have an interest in water reuse issues. While these examples clearly demonstrate that while a consistent message needs to be communicated to each group, messages might be communicated in different priority order or through different vehicles. These vehicles may include local newspapers, specific project newsletters, one-on-one briefings or meetings, presentations to groups, template articles placed in newsletters of environmental or community organizations, etc.

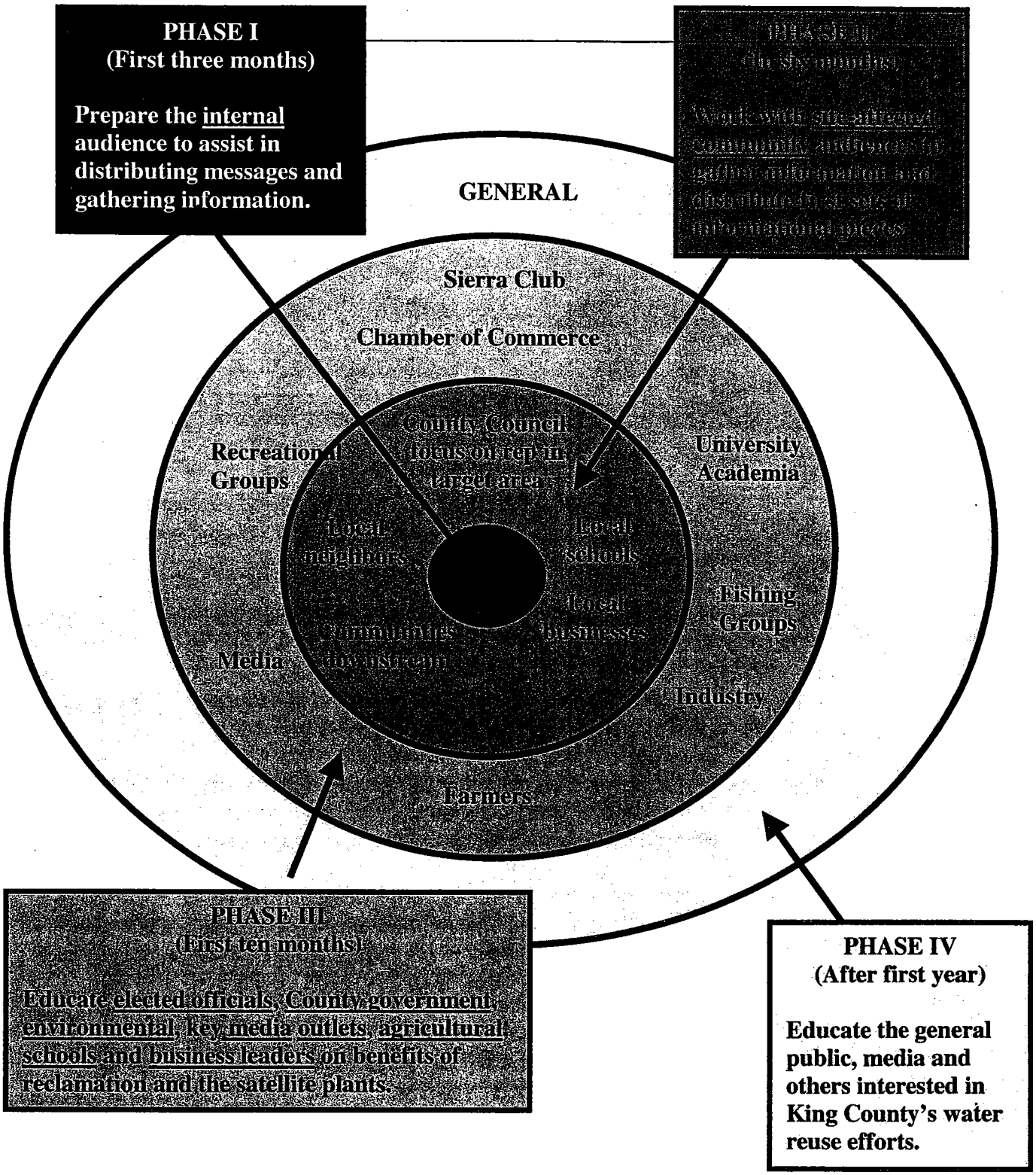
To understand the WIIFM for each audience, KCDNR needs to reach out to and be involved in the community. A public advisory panel, stakeholder interviews and an aggressive speaker's bureau are some ways in which this two-way communication can be accomplished.

AUDIENCE OUTREACH STRATEGY

With so many target audiences identified, the task of reaching all of them can seem overwhelming. Thus it is helpful to break the list into groupings that provide direction with which audiences will be targeted and involved in the early stages of the Program, and which will be approached later. The Audience Outreach Strategy graphic on the following page suggests approaching target audiences in phases, starting with the internal audiences, following with a core target audience group in satellite plant areas, and then building as the project develops to broaden the "circle" of the people the Program Team is communicating with.

By building up internal audiences, those directly involved and affected by the satellite plants and key opinion leaders, the Program Team does not have to expend efforts focusing on the general public until later in the project. This strategy also helps assure the Program Team is adequately prepared with a base of knowledge and support among opinion leaders when the time comes to approach a wider, regional audience. (Please note, the sample audiences included within each circle are only some of the people that would be approached during a particular phase.)

A. Audience Outreach Strategy



MESSAGES

Messages must be consistent and repeated often. These suggested messages should be included in both internal and external verbal communications and written information – a one-on-one briefing, mailings to interested parties, a media interview, employee staff meetings, brochure, newsletter or local forum. Sound public involvement planning recognizes that there is not one mass audience to receive messages, but rather many segmented and unique audiences which will receive communications, process the information, and respond to the information in different ways. The following list will be expanded, enhanced and refined over the course of the program:

- **Safe** – "Reclaimed water has been treated to provide clean, safe water for designated beneficial uses."
- **Good for the environment and economy** – "Reclaimed water can provide an environmentally friendly, drought-resistant water source that is available year round."
- **Saves our supply of drinking water** – "By using reclaimed water for irrigation, industry and other appropriate beneficial uses, we can save our current sources of supply for other beneficial uses such as drinking."
- **Valuable, limited resource** – "Water is a valuable resource we can conserve by using it over and over again."
- **Planning ahead** – "Our community is planning ahead to make sure people, fish and wildlife have a quality, reliable water supply for the future."
- **Innovation** – "Because high quality supplies of water are limited, we must look for new and innovative ways – like conservation and reclamation – to use this precious resource wisely and efficiently to meet our future needs."
- **Phased Approach** – "King County is evaluating various beneficial uses for reclaimed water and will implement a water reuse program in a thoughtful, phased approach, the first phase of which includes non-potable water reuse for irrigation and industrial purposes."

STRATEGIES & TACTICS

A key element in successful public outreach programs is to maintain the flexibility necessary to adjust to unforeseen challenges and opportunities. This will be especially important for the Water Reuse Program since it involves the dual component of general and site-specific activities.

The strategies on the following pages are divided into the following categories:

- **Plan Development and Research**
- **Community Relations**
- **Media Relations**
- **Governmental Relations**
- **Information Materials**
- **Internal Communications**

PLAN DEVELOPMENT/RESEARCH

A successful public outreach strategy begins with sound communications planning and adequate research. Planning and research are the foundation on which the public outreach program will be built.

Strategy: *Establish effective communication procedures and mechanisms among all members of the project team to ensure common understanding of goals, objectives, schedules and needs of various team members, agreed upon approval procedures that will not hamper the implementation of specific tactics, and a method for revising planned activities according to the progress of the program.*

Tactics:

Partnering Session. Immediately after the outreach strategy is approved, schedule a partnering session with the water reuse program team including both staff and consultants. KCDNR's Public Affairs division should be included in this meeting since many public and media outreach efforts are centralized there for KCDNR. The goal of this meeting is to develop:

- Specific goals and objectives, schedules
- Procedures and methodologies necessary for timely communication and responses
- Evaluation criteria and feedback loops
- Knowledge and understanding of KCDNR policies and procedures to be incorporated

Strategy: *Ensure program messages address public concerns.*

Tactics:

Research. KCDNR periodically conducts a telephone survey such as the Water Quality Survey completed in November 1999. This type of quantitative research provides helpful information to the public outreach team as they design and implement specific strategies and tactics to convey water reuse messages to various communities within the region. However, in addition to this research there are other specific techniques that should be coordinated with KCDNR Public Affairs and employed prior to implementing the public outreach tactics:

- Focus groups to determine the most effective terminology for water reuse (recycled water, reclaimed water, water reuse, etc.), test the effectiveness of messages, and identify effective message carriers
- A baseline telephone survey solely related to public opinion about water reuse and to quantify focus group findings
- Stakeholder interviews with community leaders, key regional or local organizations, and experts in the health and safety field (such as members of the medical society, scientists at area academic institutions, etc.) [Further discussion of stakeholder interviews is included with Community Relations tactics.]

Strategy: *Identify a broad-based list of individuals, organizations and media outlets interested in receiving information about water reuse.*

Tactics:

Community Map. Once there is enough information available about the proposed satellite plant locations, develop a "community map" that identifies affected neighborhoods, key groups within those neighborhoods, and issues associated with each location. This tool should also include the district's elected and appointed government officials, businesses and business organizations, environmental organizations, and media outlets that serve the specific community. A key component of this tool is the identification of external entities that must approve reuse projects, as well as potential individuals or organizations that will take a position related to water reuse. The Program Team should pay particular attention to identifying and addressing concerns that might impact the implementation of the Program.

Database Development and Maintenance. Develop a database from the information gleaned from the community map process for satellite plant outreach, as well as for general or region-wide outreach. The general outreach database will be determined from the audiences identified earlier in this document and from outreach partners both in KCDNR and on the Reclaimed Water Task Force. KCDNR is currently merging their existing outreach databases. The KCDNR office manager is the central contact for this project. The specific database for the Water Reuse Program may include many of these same individuals or organizations, or new contacts may be identified that are unique to the Water Reuse Program. In any event, databases must be examined and coded for general water reuse or site specific purposes.

Specific databases must also be created or coded. For example, the database must also include a media section that will be further categorized by electronic and print media, as well as by community, regional and state outlets. The government officials database must also be transferred to a regional map in order to visually display and highlight the areas of influence of policy makers within the region and their proximity to proposed satellite facilities. It will be important to ensure that Native American Tribes are included in the database so they can be informed of milestones or proposed actions related to water reuse.

Once the database is developed, it must be updated and maintained to include names of individuals who attend public meetings, call to request information, are provided through stakeholder interviews, etc. The database is the critical element for the rapid response program, as it will allow immediate dissemination of information, call to action letters, and other communications.

COMMUNITY RELATIONS

Community relations involves soliciting and maintaining strong partnerships within King County throughout the life of the Water Reuse Program.

Strategy: *Educate the public about the importance of water reuse as a safe, reliable way to expand water conservation in King County, as well as the part water reuse plays in diversifying regional water resources. Establish solid knowledge about satellite plant projects and associated benefits.*

Tactics:

Speakers Bureau Presentations. Develop a speakers bureau composed of KCDNR staff and outreach partners from the Reclaimed Water Task Force who will make presentations to community groups. Develop a list of organizations to target and make a specified number of presentations per month, both to organizations in site-specific areas and selected region-wide groups. Target audiences for the speakers bureau to include key civic organizations, business association meetings, environmental groups and others. The general slide show and visual aids (see Information Materials section) will incorporate current data and repeat key messages, and will be reviewed and updated as necessary. Contact groups and request an opportunity to speak to them, and provide appropriate follow-up activities including thank you letters and copies of requested materials. The existing ESA speakers bureau may be able to be adapted to fill this need, and that possibility should be explored.

Speakers Training. Conduct speakers training for "water reuse ambassadors," who will be selected from KCDNR staff and outreach partners (members of the Reclaimed Water Task Force) at the partnering session. No matter how good your visuals are, the most important component of an effective speakers bureau effort is a well-trained and comfortable speaker, and a clear, concise and consistent message. These speakers will utilize the general presentation (see

Information Materials section) and incorporate site-specific messages when necessary, and as appropriate.

Project and Facility Tours. Schedule tours of similar water reuse facilities in order to provide KCDNR's target audiences the opportunity to view such facilities first-hand. Tours offer an opportunity to talk with local leaders or technical experts about water reuse issues, learn about the benefits of water reuse to other areas, and experience community issues such as odor control devices, etc. Tours are a suitable educational vehicle for several different audiences, including elected officials, media representatives and community groups. Each tour will be designed to meet specific outreach objectives; for example on a media tour, third-party spokespeople that can provide a different perspective should be included and proper visuals should be made available. If the tour is for an elected official, it is helpful to arrange for local supporters to also attend so they can share their perspectives. If an actual tour is not possible either because of distance or some other factor, consider developing a video or "virtual tour" of reuse facilities and use areas.

Exhibits and Displays. Develop a project exhibit or display that describes the satellite plant and can be used in conjunction with community meetings, at project tours or special events.

Information Access. Provide project information, including general information as well as data about cost and rate information, water quality statistics, environmental impacts, etc., to organizations and individuals as requested. In addition, ensure that all program materials are accessible on the Water Reuse Program web site. Environmental and business organizations may be particularly interested in data as it relates to their specific interests.

School Education Programs. Schools offer an opportunity for implementation of education programs as part of the curriculum, but schools are also a specific audience for information about water reuse safety. Develop a school education program about water reuse and incorporate it into existing school outreach efforts in KCDNR divisions. Such programs not only educate the next generation of water users, but also convey messages about the benefits of water reuse to parents. Water reclamation may also be a topic of particular interest to educators and parents when reclaimed water is used to irrigate school playgrounds and neighborhood playing fields. In addition to various information materials that will be developed to address frequently asked questions about children and reclaimed water health and safety issues, presentations about the benefits of using reclaimed water for outdoor irrigation will be designed for parent-teacher organizations, school staff and community groups in locations where this type of water reuse is proposed.

Special Events. Seek special events opportunities such as forums co-sponsored with community organizations, "water fairs" developed in conjunction with regional water suppliers, or by participating in already scheduled events sponsored by other organizations. Schedule groundbreaking and dedication ceremonies for satellite plant(s). These are ideal events to showcase water reuse progress and provide visual/photo opportunities, as well as feature local and regional elected officials as part of the program. In addition they are a great way to involve the public in a project that belongs to them, and keep the project in the forefront of your audience over the long planning, design and construction horizons associated with most water infrastructure projects.

A special event can enhance KCDNR's efforts in reaching all of its communications goals – the community will embrace it, the governmental official will appreciate it, and the media will cover it. However, an event is only effective if the target audience attends and remembers the event in a positive light. Thus KCDNR could utilize the following "1,2,3" strategy, accompanied by appropriate information materials, to assure the target audience is informed about the project and has the capability afterward to inform others of its success:

1. Tell them you're going to do it (send out invitations, mention the upcoming event in relevant materials),

2. Tell them you're doing it now (for the media particularly, send out reminders and make sure to invite any recently developed audience), and

3. Tell them you did it (include mention of your recent event in the project newsletter, work with the media for follow-up coverage of your event, and send clips of news coverage to the interested parties' list).

Strategy: *Create opportunities for two-way dialogue, especially in site-affected areas.*

Tactics:

Community Meetings and Workshops. Schedule community meetings and workshops as needed to provide information, solicit input or discuss one or more issues related to the projects. This tactic will be used at various stages of development of the satellite plants. One variant of a community meeting is the more formal setting of a public hearing, which will be employed during the environmental review phase for satellite plants. Generally, community meetings and workshops will be most effective for satellite plants as the participants will be able to focus on specific issues and obtain information they need about the project. In any event, the meeting format will be designed to be "citizen friendly," incorporate an open house format, and fit a particular purpose. KCDNR used this technique with the RWSP and incorporated an open house prior to the more formal public meeting. This allows individuals to ask questions of staff, obtain information and provide input in a less formal (or even threatening) setting.

Information Lines. Establish a dedicated, toll-free telephone line that provides basic information on the program and records a caller's questions and concerns regarding that program. This technique is recommended for satellite plants, and will probably not be necessary until a specific site is selected. However, the Water Reuse Program could also consider publicizing the telephone number as part of the region-wide outreach. Water reuse programs can experience a high volume of questions and comments from community members impacted by an issue directly in their neighborhood, as well as from people who have heard about the program and have concerns or questions about it especially during the construction phase. The responsibility for responding to callers should be assigned to a member of the Program Team, who may refer the call to a staff expert. Prompt and accurate responses to the questions or concerns received is essential and contributes to the two-way dialogue desired

Advisory Groups. Form a working citizens advisory group for each proposed satellite plant that is representative of a broad base of community interests. Key elements for an effective advisory group include: identifying a specific mission or work product the group will produce; establishing a schedule of meeting dates that includes a target date for the group to complete its work and disband; developing "principles of participation" under which the working group will operate; and providing a neutral facilitator to ensure a collaborative decision process is followed. The goal of this tactic is to have the community group work with KCDNR staff to identify a site for the satellite plant. The work product of the advisory group will be a written report that can be shared with elected officials, members of the community-at-large and the media.

The advisory group will also provide an excellent forum in which to anticipate public reaction to proposed decisions, provide communication to their constituencies about the issues and consequences of alternative actions. In addition, the group can come back together again to review design and pipeline route issues, as well as provide input related to construction issues. Some members of the original group should be included in subsequent design/construction input phases to provide continuity. An advisory group can provide KCDNR with a strong base of well-educated community members who may become allies for future projects, as well as provide valuable input and direction on a specific project or task.

Strategy: *Develop and maintain support from key stakeholders and communicate this support to the public, media and governmental officials.*

Tactics:

Interested Parties Communications. Send project information, updates, media coverage and meeting announcements to the "interested parties list" periodically. This list will include stakeholders, elected and appointed officials, community leaders, neighbors, and others who are interested in water resource issues. The tactic will be employed for site-specific projects initially, but information or media coverage about milestone events, such as a satellite plant groundbreaking, should be sent to a larger list as part of the general outreach effort.

Ally Development. Identify independent, third parties that can speak about their experience with and support of the Water Reuse Program. Independent spokespeople will be sought from academia, business, industry associations, think tanks, health and safety interests, environmental organizations and others with water reuse project experience. The previously mentioned Advisory Group can serve in this role also. As the program evolves, allies may be called upon to write op-ed articles or letters to the editor or otherwise speak about the benefits of water reuse. All allies should be updated about program or specific project progress as part of the interested parties' list.

Outreach Partners. Members of the Reclaimed Water Task Force, and other water suppliers, will be asked to be "outreach partners." Outreach partners will assist KCDNR's outreach efforts by speaking to community groups as part of the speakers bureau, helping to coordinate water reuse outreach activities with other projects in the region, and leveraging opportunities by co-sponsoring events with KCDNR. Washington State Department of Ecology, for example, has

recognized water reuse expertise with the public and one of their staff members may be the perfect speaker for a specific group.

Awards Program. Utilize existing awards or recognition program to recognize businesses or community organizations that use reclaimed water, or neighborhoods that support its use in their community. For example, a new category could be added to the Green Globe Award Ceremony. If there is a need for a new award category, work with KCDNR staff to create the new award program. The awards program offers an opportunity for media coverage, as well as creates allies who can speak first-hand about water reuse applications.

***Strategy**: Address concerns related to public health and safety and convey KCDNR's sensitivity to endangered species act requirements and the needs of the salmon population.*

Tactics:

Blue Ribbon Panel. Establish a "blue ribbon" panel of medical, water quality, fisheries and other appropriate scientific experts to review water reuse plans for King County and provide recommendations related to the public health and safety of using reclaimed water. KCDNR staff and consultants will provide data on the program, but the independent panel review can help assure the public – through a formal report – that the proposed treatment methods and reclaimed water uses are scientifically sound and safe. Publish the blue ribbon panel report, arrange interviews with panel members as appropriate, and include panel members as third-party spokespeople at policy board or community presentations.

Holidays. Participate in Earth Day celebrations in April, Drinking Water Month in May and other local environmental festivals to "piggyback" on already scheduled events that appeal to an audience that is interested in the environmental benefits of water reuse. As KCDNR already participates in a number of events, all such activities will be coordinated with the King County Executive's office contact, KCDNR Public Affairs. KCDNR will also communicate with local agencies represented at these events as an extension of the "no surprises" approach.

Avoid Duplication. By identifying early on any currently existing materials or programs that can be used to increase awareness, the Program Team will avoid duplicative efforts and maximize the tools available to reach their goals. Thus, part of the research process will include a review of existing outreach mechanisms throughout King County and KCDNR to identify those that can include water reuse, or be modified to help communicate water reuse messages. Examples include coordinating with the SWAMP program for outreach in the schools, or incorporating existing information on water quality in King County into Program fact sheets and brochures.

MEDIA RELATIONS

The media is both a strategy for public information and education, and an audience to be educated. Components of an effective media relations program include understanding how the

media works, establishing relationships with and being a resource for reporters, and designing a solid media outreach strategy.

Media coverage of water reuse issues will be sought in both print and broadcast media. In addition, large regional publications will reach key audiences and be vehicles for disseminating a region-wide message, while community papers will be targeted for satellite plant(s).

Media relations for King County are centralized in KCDNR Public Affairs division, and news releases are issued from this office. Media outreach planning must involve a Public Affairs staff member. The following media outreach strategy and tactics should be part of the overall public outreach strategy for the Water Reuse Program, but may be initiated by the Public Affairs division staff or an outside consultant in conjunction/coordination with Public Affairs.

***Strategy**: Ensure fair and accurate coverage about water reuse in both print and broadcast media.*

Tactics:

Identify Spokespeople. This is the first step in an effective media outreach strategy. Determine who will speak to the media about the Water Reuse Program and associated projects during the partnering session.

Spokespeople must be able to communicate effectively about water reuse in general/layperson's terms, King County's program with specific facts and scientific data to support facts and the satellite plants.

Media Protocol. Develop a clear media protocol that is consistent with KCDNR policy and practice, but at the same time provides for the Program Team to establish and enhance relationships with media representatives at various levels. The Program Team will attempt, whenever possible, to inform stakeholders in advance about pending media stories.

Media Training. Conduct media training for program spokespeople to ensure they have the opportunity to learn how the media works, practice techniques for conducting an interview, as well as conveying key program messages, and begin to identify opportunities to obtain media coverage for the program and its specific satellite plants.

News Releases. Write news releases at appropriate milestones in the program, such as for selection of satellite plant sites, announcements of public or community meetings, groundbreaking events, or other similar matters. Use the media database (see Research section) to establish a fax list for disseminating news releases to all media outlets simultaneously in order to maintain good relations with reporters. Often, community newspapers will publish news releases verbatim – this will be a helpful medium for communication information on the satellite plants.

Because of the number of news releases received, especially by broadcast media, they are most effective if followed with personal contact to increase chances for coverage and clarify questions the reporters or editors may have. News releases will not take the place of establishing personal relationships with reporters or making follow-up calls for key events.

News Conferences. This tactic will be reserved for a major announcement or rapid response situation. If appropriate, a briefing-type news conference will be scheduled to highlight a particular issue or key event.

Public Service Announcements. Seek public service announcements (PSAs) of public meetings, events or other opportunities for the public to participate in government decision making, or as a way to convey a specific message regarding a crisis situation. For example, in the case of drought conditions, KCDNR might choose to produce a PSA that explains that water reuse is a way to expand water conservation gains.

Op-Ed Articles/Letters to the Editor. Draft op-ed articles (articles expressing a particular point of view that are published in the editorial section of the newspaper) and letters to the editor, as needed, to increase public awareness about water reuse, clarify an issue related to water reclamation, or correct misinformation. The op-ed articles and letters would be written for signature by independent third party spokespeople or a member of the KCDNR staff, as appropriate.

Press Kit. Create a press or media kit that is similar to the information kit described in the Information Materials section, and customize it for a specific story. In addition to a news release, a media or press kit will include contact information, a fact sheet about the project or specific aspect of the project, news clips about the program, supporting materials such as brochures, graphs, glossary of terms, maps, etc., biographies of key people at the event, a program or itinerary if appropriate, and photographs and b-roll.

***Strategy**: Create opportunities to tell the water reuse story, and its benefits to people and the environment in the Puget Sound region, albeit through a low-key approach as opposed to an aggressive publicity campaign.*

Tactics:

Editorial Calendars. Refine the work done on the database (see Research section) to identify editorial calendars for local, regional and industry publications and seek coverage for the Water Reuse Program at appropriate times. Industry or trade publications should be pursued as articles in these vehicles provide excellent additions to a media or press kit, as well as attract the attention of elected and appointed officials.

Background Editorial Briefings. Working in coordination with the King County Executive's office contact, KCDNR Public Affairs, schedule background editorial briefings as appropriate and prior to milestone events or decisions about water reuse. These briefings are informal, "on the record" meetings with one or more editors, reporters and members of the project team. This

is an opportunity for editors and reporters to learn about the issue and Program and ask questions of decision-makers and key project team members. It establishes a foundation of general knowledge about the Program, which can be helpful if and when the Program Team decides to seek coverage about water reuse in King County or is placed in a reactive position with the media. For example, when a site is chosen for a satellite plant, the Program Team should take the opportunity to brief the editor and reporters of major publications and broadcast media about the benefits of water reuse for the Puget Sound region. Editorial briefings also can result in a favorable editorial about a project or induce reporters to attend and cover an event.

Trade Publication Pitches. Seek coverage for water reuse programs in water industry, environmental and political publications. Elected and appointed government officials, for example, read publications such as American City and County and will be interested to see the Water Reuse Program covered there. A valuable way to "continue the life" of an industry or trade article is to produce article reprints with the publication's masthead. These stand-alone information pieces can be used in information kits, as backgrounders for the media or for briefings with community leaders.

B-Roll Footage. Produce "b-roll," or background video footage (visuals without a voiceover) in Beta format that can be used by television stations. Provide b-roll that depicts facilities, examples of water usage, river and stream habitat, fish migration, and other visuals related to water reuse to television reporters who are covering a water reuse event. By providing the visual coverage needed by reporters, the Program Team will improve the chance of having their story aired on news programs. B-roll can be created during the production process for a project, and can also be used for creating informational videos for outreach presentations. Another tactic that uses b-roll is the Video News Release, or VNR, which may incorporate interviews with elected officials, key supporters or others commenting on the water reuse benefits. VNRs also may be used by television reporters to produce a news segment on the Program. These tactics are particularly useful during the construction phase, especially for groundbreakings, dedications and other special events.

Cable Television. Explore using cable television, particularly the county's television option, to educate the public about water reuse and use this venue to discuss issues or concerns that are raised. If feasible, as part of the general or regional outreach program, contact cable television stations and arrange for them to air educational programs about water reuse.

GOVERNMENTAL RELATIONS

Communication with elected officials is a key to the success of the Water Reuse Program. Elected and appointed government officials need to be knowledgeable about water reuse for a number of reasons, including the fact that final decisions about infrastructure projects rest with policy makers. Constituents often call their offices to gather information about such projects, and they have a daily forum to speak about issues. Consequently, the government relations outreach strategy can be summed up as "no surprises."

Strategy: *Ensure there are "no surprises" related to water reuse programs by briefing/informing all elected and appointed officials about major decisions prior to their occurrence.*

Tactics:

Briefings. Conduct one-on-one briefings about the Water Reuse Program for all elected officials in the region, regardless of whether they will vote on a satellite plant location or environmental documents. The database and regional map of elected officials (see Research section) will guide this process and ensure no official is left out of the briefing process. Continue to regularly inform elected and appointed officials of milestones in the process and ensure they are aware of decision points prior to any action being taken. This can be done in a variety of ways including interested parties mailings, telephone calls to alert them about a specific issue, fax or e-mail updates, individual letters to inform them about an issue or misinformation, or one-on-one meetings with the official or a staff member. Meetings with policy makers often lead to two-way communication, as valuable information may be received in response to an announcement. It is particularly important to provide briefings if KCDNR actions relate to politically sensitive issues in a community or region. For the most effective briefings, KCDNR should identify if there is staff that cover water, environmental and related issues for each elected official or agency head, as well as the person that keeps the official's schedule, and follow through with timely meetings and consistent messages. This is an area where outreach partners will be able to assist the Program Team.

Contact Information. Ensure that all elected and appointed officials have the names, phone and fax numbers, and e-mail addresses of the Program Team (or any additional appropriate contact people), as well as the toll-free information line number to provide to their constituents. This type of assistance is greatly appreciated by policy makers and their staff members and will assist the Program Team to establish a good working relationship.

Follow-up. Follow-up promptly to provide additional information requested from an elected or appointed official. Follow-up for interaction with elected officials could include personal briefings, inviting them to present awards in their district if appropriate or requesting that they serve as the featured speaker at a groundbreaking or dedication.

Policy Binders. Compile relevant project information in an easy-to-reference manner in a policy binder for elected officials and their staff. Create a three-ring binder specific to water reuse that contains background and current information in a tabbed format, but has room for additional material to be added as updates are available. Items that will be included are general fact sheets, one page descriptions of the Program goals, relevant brochures and commonly asked questions about water reclamation, Task Force or Advisory Group recommendations if appropriate, relevant news articles, key maps and visuals, schedules, a listing of key project personnel and their contact information, the toll-free information line number, and other pertinent project-specific material and information on the assistance KCDNR provides to resolve water and environmental problems.

Strategy: *Create opportunities for elected and appointed officials to see and hear about water reuse projects first-hand, and provide information about how water reuse can benefit their communities.*

Tactics:

Project and Facility Tours. Schedule tours of similar reuse facilities for elected and appointed officials in proposed satellite plant areas. This will ensure that they have an opportunity for hands-on experience with the technology proposed and the product water. Government officials can sometimes be included in what was originally intended to be a community or media tour, if the individual wants to see a project first-hand and provide comments to print or TV reporters present at the time. Always, however, notify an elected official if the media will be present at any KCDNR event he or she is attending. Elected officials prefer to avoid surprises, but will often be pleased to talk to the media.

Testimonials. Develop a list of elected and appointed officials in other jurisdictions in Washington and across the nation who have experience with water reuse projects and offer to arrange a meeting, telephone conference or panel discussion to learn their views about water reuse. Just like a facility tour provides elected officials with the opportunity to see how existing facilities operate, it can also be useful to provide them with the opportunity to hear from other officials or community leaders on how such facilities benefit other regions. By providing testimonials from other communities that use reclaimed water, the Program Team will give elected officials a chance to hear about some of the concerns other communities may have had, learn how they addressed the concerns and issues, and hear how the reuse program is working. If meetings are not possible, consider providing information from other jurisdictions on video, or in writing as a direct letter to key audiences or a quote in an informational piece or news article.

Resolutions. Obtain a resolution of support for the Water Reuse Program and proposed satellite plants from various local and key regional organizations. Civic organizations often ask how they can assist to make reuse programs a reality after they hear a speakers bureau presentation – a resolution of support is an excellent way to do this. In addition, the advisory committee report will serve as a means to convey support for satellite plant locations.

Specific Benefits. Identify specific ways water reuse can benefit various communities and provide that information to management and administrators. For example, inform municipalities of potential benefits of including water reuse as an element of the Water Comprehensive Plan they are required to submit.

INFORMATION MATERIALS

While there are many types of informational materials that should be developed for this Program – as outlined below – the most important thing about all materials is to assure that they are relevant and appropriate for each audience. Each audience, for example, should receive general information about water reuse, but material should be revised to include specific information for site-specific outreach, satellite plants or specific audience groups. Information materials should all follow a consistent style, format and appearance for them to be easily identified as deriving

from the KCDNR Water Reuse Program.[1] In addition, all information materials should be included on the Program web site. Following are recommendations for materials to be developed:

Information Kits – An information kit provides a summary of the key information people may need regarding KCDNR or the Water Reuse Program. Typically, an information kit consists of a folder with pockets that contains fact sheets and brochures, short summaries of specific projects or key technical studies, reprints of positive media coverage, newsletters, etc. Once a kit is prepared, identify audience members who need the information and provide them with a kit. The kit should be comprised of specific components that can be combined for different target audiences. Information kits will be modified appropriately to serve as press kits and the basis for an elected official's policy binder.

Fact Sheets – One-page fact sheets on water reuse and related issues should be developed to include in information kits, use separately at briefings or to answer requests for information. Creating a template for fact sheets will be very helpful for creating new fact sheets on specific topics and updating old fact sheets, as well as ensuring that materials are consistent and easily identified.

Information Boards – Enlarge graphic depictions of water reuse technology and satellite plant proposals or key messages and mount them on large poster-size boards as a tool to convey complicated issues. Use information boards during presentations, in information booths or at tour locations.

"Frequently Asked Questions" – A brief list of frequently asked questions and answers about a project, process or issue is also an excellent tool to convey information. A question and answer format is especially helpful with complex, emotional and scientific issues related to water reuse. The FAQ should be included in information kits, policy binders, and on the web site.

Newsletters – Newsletters are a means of sustaining interest and updating key audiences about specific projects and/or issues. A Water Reuse Program newsletter should be created to focus on the satellite plant process in order to update impacted community residents, businesses and elected officials. The newsletter will be distributed widely in site-specific areas, but also to key community leaders, regional organizations and government officials. Although they should be brief, newsletters provide far more information than can be communicated through the news media. This tool also provides a means to ensure accurate and timely information is disseminated to target audiences.

Any existing KCDNR newsletters can include information on water reuse from time to time, and newsletter production should be coordinated with other ongoing outreach

[1] KCDNR is currently conducting an audit of all KCDNR communication materials. Once the audit is complete, the Information Materials section of this strategy should be reviewed and revised as necessary to be consistent with KCDNR communication policy. The types of information materials identified here are those that will be effective for the Water Reuse Program, however.

efforts. However, from time to time it will be necessary to explain technical information to the lay person, and a program-specific, periodic newsletter can serve this purpose best. Newsletters can also be made more user-friendly and inviting with the use of interesting graphic designs without making them look too "slick" and expensive. Likewise, recycled paper will always be used to demonstrate that KCDNR acts to protect the environment.

A newsletter can be a very effective tool because the Water Reuse Program can control the message and send it directly to key individuals and organizations. However, a newsletter should not be created without careful and deliberate thought. To the extent that another communication tool will fill the identified need in a better way, a newsletter may not be the chosen information tool.

Bill Inserts – Since water and sewer utilities regularly distribute bills to their customers, bill inserts may be a cost-effective way to disseminate information. The Program Team should work with utilities in the region to assess the potential to include water reuse information in residential utility bills periodically. There is normally a long lead-time for bill inserts and often competition for the available space, so this mechanism must be planned ahead and only used for milestone events or with site-affected communities.

Web Site – King County already boasts an impressive web site that is very visually appealing, highly comprehensive and easy to navigate. With the Internet serving as a preferred source of access to information for a growing number of audiences, and one that further identifies KCDNR as a cutting-edge organization, it is important that information on the Water Reuse Program be available though this medium. By including information on water reuse on the existing web site, hundreds of people can access this information at any moment. However, because the Internet is seen as the place with the most up-to-date information, the Water Reuse Program information should be kept current and timely, the topics should be registered with the appropriate search engines, and outreach partners should provide links from their web site to this one. The newsletter, fact sheet and other information materials produced should also be posted on the web site to get further mileage out of this very effective communications tool.

Project Presentations – A water reuse presentation suitable for general audiences will be developed and adapted as necessary for site- or issue-specific audiences, such as a neighborhood association near a proposed satellite plant or an environmental organization. The presentation will contain the program messages, graphics that illustrate water reuse concepts, relevant schedules, and suggested ways members of the public can get involved.

Video – A brief 10- to 12-minute video is a very effective tool to provide a visual, concise, accurate and consistent summary to audiences. A video also helps bring existing water reuse facilities to a target audience when it is not possible to take them on a facility tour, as described in previous sections. Videos can also be distributed to cable stations to use in community segments, or to libraries, schools, and others that request a copy. Existing KCDNR videos on related water issues will be reviewed to determine if they contain footage that can be utilized to create a water reuse video. Identifying existing

footage or graphics helps to decrease the cost of developing a program video. Any material development, including videos, should be coordinated with KCDNR Public Affairs division.

INTERNAL COMMUNICATIONS

Another key component of an effective public outreach strategy is to ensure that internal communications about the program are accurate and staff members of all participating agencies are informed about the program goals. While some aspects of internal communication will be addressed during the partnering session, an ongoing internal communication process is critical.

***Strategy**: Educate and inform appropriate KCDNR staff about water reuse and the Program goals and objectives, as well as the benefits to the Puget Sound region of using reclaimed water.*

Tactics:

Staff Meetings. The Water Reuse Program Team will attend various KCDNR unit staff meetings to present the water reuse program goals and the process that will be followed, describe the satellite plant concept, provide a schedule of activities, and respond to questions.

Materials. Staff will be notified about the location of program materials, web site information, videos, etc., through e-mail, posting on bulletin boards, at staff meeting presentations about the program, or other appropriate means.

***Strategy**: Coordinate water reuse outreach efforts with other similar projects and programs being conducted by KCDNR and other regional entities in order to reduce public confusion and avoid overloading key stakeholders or organizations with requests for participation.*

Tactics:

Research. Develop a list of outreach programs/projects currently being conducted by KCDNR. Work with appropriate public outreach professionals to identify potential areas of cooperation among the programs. Work with outreach partners to develop a listing of regional projects that have a significant outreach component and meet with the people responsible for conducting them to develop a similar cooperative procedure. Ensure that all of the principals involved in similar projects, either at KCDNR or other agencies, are on the mailing list to receive Water Reuse Program updates, newsletters, etc.

RAPID RESPONSE PROGRAM

An important facet of any communications plan is to form a plan of action for crisis situations in advance. Being prepared in advance of a crisis allows immediate control of a situation, as opposed to having the media determine for themselves what is newsworthy and run with their story. Crises should follow the adopted KCDNR crisis management procedures that are centralized in the Public Affairs division. The Water Reuse Team should provide a copy of that procedure to all Team members and consultants. It is especially important in a crisis situation that all KCDNR communication is coordinated and that KCDNR spokespeople are consistent in the information they release. The following response program is suggested for the Water Reuse Program specifically, although it would be implemented in coordination with – or in some cases entirely by – KCDNR Public Affairs.

The most common case with water reuse programs, however, is that an emotional reaction occurs or a misinformation campaign is launched by a group or politician who opposes the use of reclaimed water. Therefore, having a rapid-response program in place is critical should misinformation be reported in the media or a community protest or heated public meeting gain momentum with the press and elected officials. And because most rapid response communications efforts involve working with the media, this topic can be addressed during media training. The following are general but helpful rapid response and crisis communications steps that should be addressed early on – before there is any chance of needing them.

Identify a Media Spokesperson. Media spokespeople for the Water Reuse Program will be identified early in the process and a media protocol will be developed. Thorough training will be provided for the people who are selected. Following are general guidelines accepted by most agencies related to spokespeople:

- Provide the top person available. The media and the public prefer to speak with the highest ranking executives or the most "accountable."
- Make certain that the person is knowledgeable enough to handle all possible questions.
- Select a person who has the authority and discretion to discuss sensitive information beyond the specific subject or problem at hand.
- Select someone who personifies the image of KCDNR that you want before the public.
- Ensure that the spokesperson has been trained to handle the media interview challenge.

Identify Key Messages. The Program Outreach Team will review existing program messages and revise them as necessary for a rapid-response situation. It is imperative that communications be accurate, consistent, timely, clear, complete and responsive.

The Media. In the case of misinformation, a negative or inaccurate editorial or letter to the editor, the best response is to quickly point out the mistake to the news organization and see if they are willing to print a retraction or correction. In the meantime, a retorting letter or op-ed will be honed to counter the misinformation. A standard template rapid-response piece will be drafted with general messages to be honed in this kind of situation. (If the news outlet is willing to retract the item, it may be wise to hold off on the letter or op-ed, as sometimes in defending against a negative message an organization just repeats the message and causes more damage.) Corrections must not dwell too long on a negative message or seem defensive or confrontational. Depending upon the tone of the media coverage, editorial briefings by key policy makers and members of the Program Team will also be scheduled.

Internal Briefings. Project staff, contractors, etc. will be informed as soon as possible about what has been done to correct misinformation and will be provided with the correct information so that erroneous information is not perpetuated. It is always important that staff/contractors have the facts about the situation. (Rumors from the inside are often more damaging than any other spread of information.)

One-on-One Briefings. Elected officials are one of the most sensitive audiences where misinformation or emotional campaigns are concerned. Should either arise, personal phone calls to key elected officials will be made immediately to provide factual information. Citizens' and media questions will reach elected officials very early, so it's essential they have factual data. When an elected official receives constituent calls asking questions, they also need to have a contact name and number to pass along to their constituency. Outreach partners should also receive calls from the Program Team so they understand the situation and what is being done to deal with it.

Follow Up. Once the groundwork has been laid and the "emergency" activity has settled somewhat, the project staff should send a written notice from the highest ranking member of the Program Team to all key elected officials, resource agencies, interest groups and the media to reinforce factual information.

Perceptions. Attitudes about water reuse can be expressed in emotional terms, therefore it is an issue that is susceptible to having facts overshadowed by emotional statements. This makes it all the more important to have a sound, "no-surprises" outreach strategy in place and operating so that key stakeholders, elected officials and others have up-to-date, accurate information about reuse projects. The strategies and tactics included in this document will help minimize misperceptions. However, the Program Team must be good listeners and have good "antenna" for negative, emotional activity related to the issue and take steps to ensure positive messages are disseminated. Likewise, it is a good idea to compare program milestones with election cycle calendars to ensure the Water Reuse Program does not become an emotion-laden issue in a political campaign.

MANAGE CHANGE

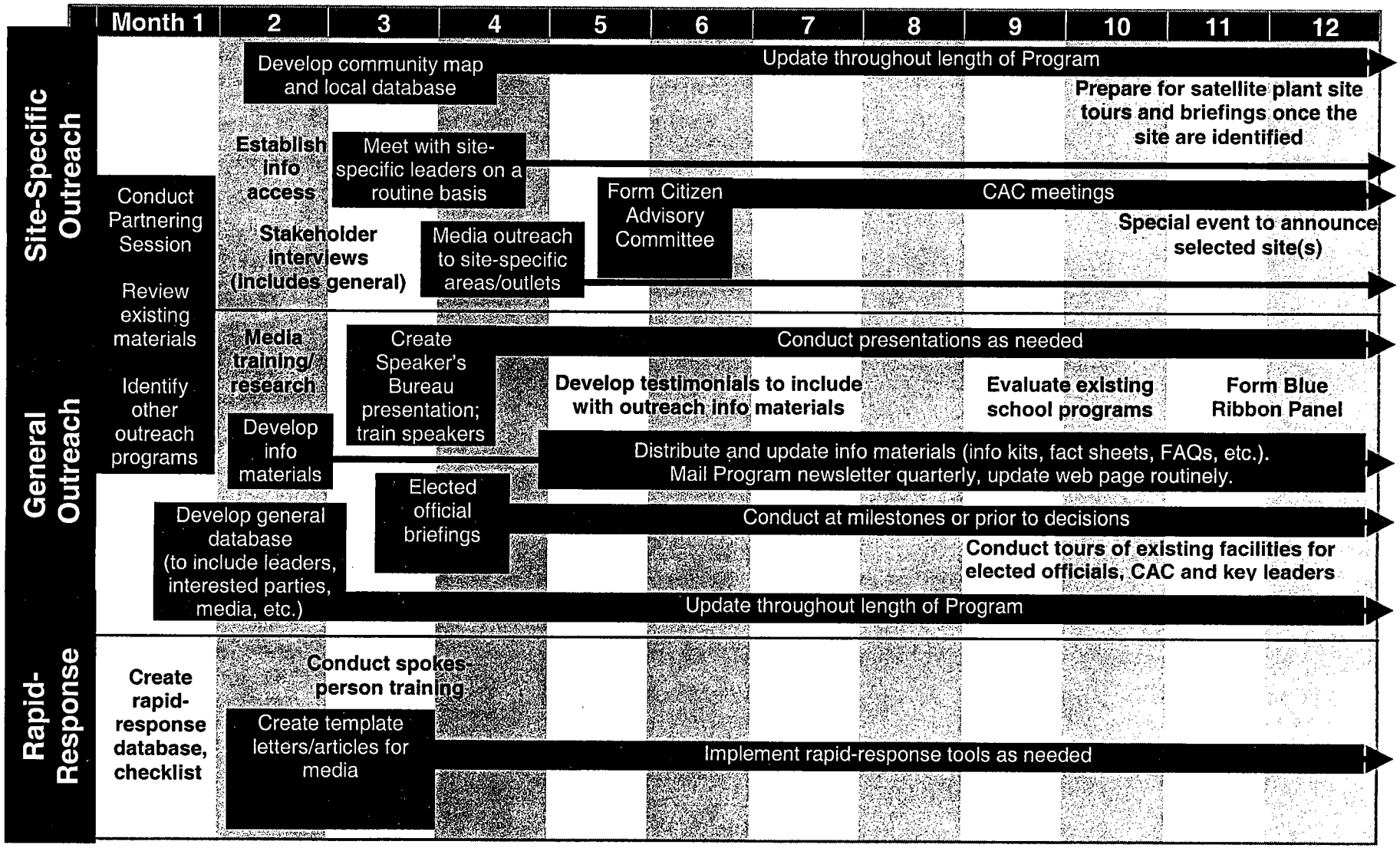
Throughout the implementation of the various public outreach tactics, it is necessary to monitor progress and manage change. Conditions may change dramatically over the course of a five-year program, and the Water Reuse Program Team needs to stay on top of these changes and adjust the outreach program as necessary. For example, if there were a severe drought during the course of this program, public acceptance for water reuse and other water supply diversification programs would likely be very high. Conversely, if the Puget Sound region experiences unusually heavy rainfall during this same period, it may be more difficult to gain public understanding of the need to reclaim water for beneficial uses. In addition, changes in the economy, political administrations and other factors can impact the successful implementation of a water reuse program. For all of these reasons, the public outreach strategy must be revisited at least on an annual basis and revised accordingly.

The most effective way to adjust the program to changing conditions is to begin with the planning and research phase to develop the course of the outreach program. Evaluation of the effectiveness of implementing various tactics will take place, databases and community maps need to be updated, and surveys conducted (or monitored if the Program Team elects to use the results from KCDNR's annual survey rather than conducting a separate survey). This "annual check-up" should also include a review and revision of program messages, updating audiences and adding specificity where possible to key organizations and individuals in the region, and ensuring that regional elected officials have been briefed regularly on water reuse issues. This process helps to ensure that stakeholders, elected officials, and key audiences have an accurate understanding about the current status of the Program and associated projects.

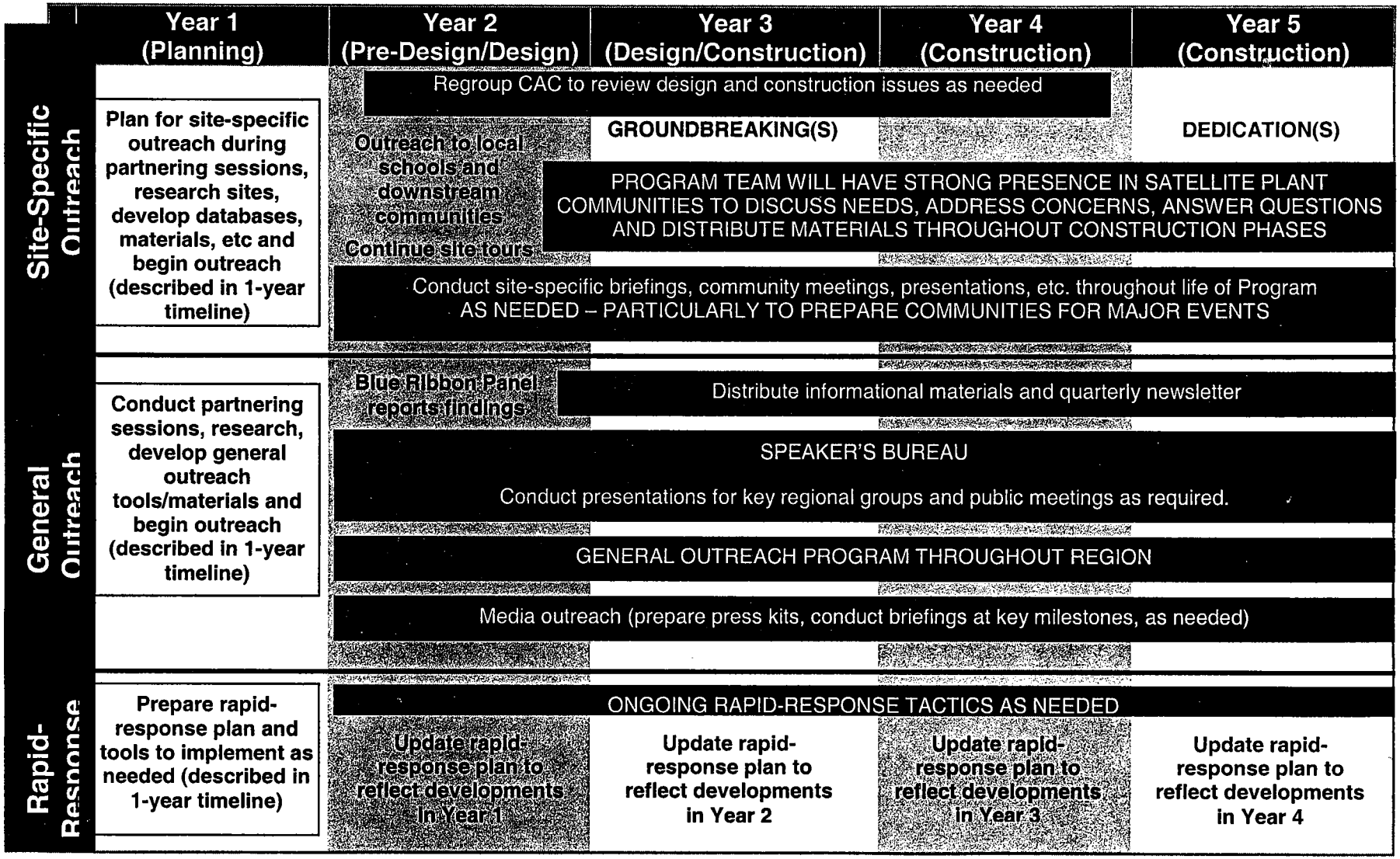
The annual planning session will also allow the Program Team to plan the editorial content for program newsletters, consider and add new tactics as appropriate, and plan for full implementation of suggested programs. For example, the Program Team may conclude that the second year of the program is, in fact, the appropriate time to work with regional entities to include water reuse as a topic in existing school education programs. Alternatively, the Team may decide that the program is moving more slowly than original projections and continue to focus efforts on satellite plants for a longer period of time.

Public outreach strategies must remain flexible and be revised to fit the situation in order to be effective. Constant awareness of influencing factors and commitment to manage changing conditions will ensure the outreach program stays fresh and takes advantage of every available opportunity.

Twelve-month Timeline for First Year



Five-year Timeline



King County Reclaimed Water Assistance Program

Subtask 310/320 – Identify Potential Reclaimed Water Users and Locations of Large Volumes of Source Wastewater

PREPARED FOR: Tom Fox/KCDNR

PREPARED BY: Bill Persich/Brown and Caldwell

COPIES: Nancy Davidson/KCDNR
Greg Bush/KCDNR
John Smyth/KCDNR

DATE: May 3, 2000

Purpose

The purpose of these two Subtasks is to identify current and future potential users of reclaimed water in the King County Department of Natural Resources (KCDNR) wastewater service area and to identify locations of source wastewater that can serve those needs. The outcome from these efforts is to develop an initial inventory of all probable application sites and to display this information graphically to facilitate screening of potentially viable candidates. This information will be integrated with the results of KCDNR's ongoing Request for Project Nominations efforts to obtain specific information on interested parties that potentially may wish to use reclaimed water (Subtask 410).

Approach

Information that identifies potential reclaimed water users and locations for large volumes of source wastewater was provided by KCDNR. This information included a GIS-based map and an attached data-base inventory list.

Potential Reclaimed Water Users

Information depicting the locations of potential reclaimed water users was obtained in February 2000 from KCDNR in several computer based files (King County GIS Technical Resource Center file *waterusers.dbf*). In addition to providing information on the locations of these potential users, KCDNR provided a data-base file that provided the names of the potential users, type of usage, their potential water demand, and X-Y coordinates used to plot the locations of the potential users on GIS-based mapping. The original data from KCDNR was used to develop a map that showed the locations of the potential users and depicted them graphically as a circle whose diameter is proportional to the potential reclaimed water demand for all users in that section (the larger the circle diameter, the larger the potential demand). The X-Y coordinate system used to show the locations of potential users does not necessarily show the exact location of those users. The data-base for this information locates the user at the centroid of the Township, Range, and Section for

each particular potential user. Since each Section is approximately a square, one square mile in area, the exact location of any particular user could be anywhere within the Section identified as its location. As a result, graphical information depicting the location of any particular potential user could be as much as one-half mile from its actual location. In addition, the original data from KCDNR illustrated only a single circle (diameter proportional to potential demand) at the centroid of each Section that contained any potential reclaimed water users. It should be noted that multiple potential users within a Section are combined to represent a single circle on the original County map, again with the diameter of the circle proportional to the sum of the potential demand within that Section.

The data-base that provided information on the potential users contained many fields of data describing that user. Of particular use is the user's name, ID number, type of use (park, golf course, cemetery, etc.), demand, and X-Y coordinate. The information for reclaimed water demand is displayed in units of million gallons per day (mgd), and is assumed for the purpose of this investigation to represent annual average flow demand.

Locations of Large Volumes of Source Wastewater

KCDNR also provided graphical information showing the locations of sewers and force mains within the King County Service Area. Information depicting this data was obtained in February 2000 from KCDNR in several computer based files (King County GIS Technical Resource Center CD-ROM #7 *Standard Database Shapefiles*, October 1997). This information was divided into four separate flow categories as shown below:

Less than 3.0 mgd
3.0-4.0 mgd
5.0-9.9 mgd
10.0 mgd and greater

For this study, it is assumed that the numerical information on sewer conveyance flows illustrates average annual flows. Actual flows will vary greatly in response to diurnal variations, seasonal variations, and precipitation events. Per directions from KCDNR, the field of information to identify large volumes of source wastewater is to exclude conveyance piping identified in the less than 3.0 mgd flow range. This criterion of selecting conveyance piping with flows of 3.0 mgd and greater stems in part from concerns of extracting too high a proportion of sewage from small conveyance systems and not having adequate remaining raw sewage flows in the piping system to transport the residual solids from a satellite reclamation plant to its final destination at KCDNR's Wastewater Treatment Plants.

Results

The subsequent efforts for this investigation utilized the original information obtained from KCDNR to produce an initial screening of potential reclaimed water application sites. Further screening criteria were applied to assist with the screening process. In addition to the KCDNR criterion of using raw sewage conveyance systems with flows of 3.0 mgd and greater, other tiered criteria related to distance between potential users and these large sewerage systems were developed. This distance criteria developed for initially screening users in this investigation is as follows:

- Users within 1,000 feet of large sewage conveyance systems
- Users within 2,000 feet of large sewage conveyance systems
- Users within 3,000 feet of large sewage conveyance systems

Potential users falling within each of these criteria were screened from the initial data-base provided by KCDNR. Each of these distance criteria include a tolerance factor of plus or minus one-half mile because of the uncertainty of actual user locations as described above. Since each actual user location is valid within one-half mile of its identified location, a tolerance factor of one-half mile is selected.

In addition to this first round of screening, other screening criteria were used to identify potential users types as a function of distance from source wastewater. The data-base was scanned to identify all potential reclaimed water users that lie within 1 mile (plus or minus one-half mile) of sewage conveyance systems with flows of 3.0 mgd or greater.

The results of this data screening are contained in the following tables and figures. Table 3-1 lists all potential reclaimed water users that are found within 1,000 feet of sewage conveyance systems with flows of 3.0 mgd or greater. Information in this table shows user name, ID number, type of usage, demand, and locating coordinates. There are 37 potential users that fall in this category.

Table 3-2 lists all potential reclaimed water users that are found within 2,000 feet of sewage conveyance systems with flows of 3.0 mgd or greater. Information in this table shows user name, ID number, type of usage, demand, and locating coordinates. There are 70 potential users that fall in this category, including the 37 potential users identified previously.

Table 3-3 lists all potential reclaimed water users that are found within 3,000 feet of sewage conveyance systems with flows of 3.0 mgd or greater. Information in this table shows user name, ID number, type of usage, demand, and locating coordinates. There are 103 potential users that fall in this category, including the 70 potential users identified previously.

The information contained in Tables 3-1 through 3-3 is depicted graphically in Figure 3-1. This figure shows the location of sewage conveyance systems with flows of 3.0 mgd and greater and the screened list of all potential reclaimed users that fall within the distance criteria from these sewage systems. The names of these potential users appear on the appropriate tables in this narrative.

Table 3-4 lists all potential irrigation type reclaimed water users (golf courses, parks, and cemeteries) that are found within 1 mile of sewage conveyance systems with flows of 3.0 mgd or greater. Information in this table shows user name, ID number, type of usage, demand, and locating coordinates. There are 88 potential reclaimed water irrigation users that fall in this category.

Figure 3-2 depicts the information contained in Table 3-4 and illustrates the golf courses, parks, and cemeteries within 1 mile of sewage conveyance systems with flows of 3.0 mgd and greater. The names of these potential irrigation users appear in Table 3-4.

TABLE 3-1
Users Within 1000 feet of Sewage Conveyance System
With Flows of 3 mgd or Greater

NO.	IDENTITY	NAME	TYPE	MGD	AVERAGE_X	AVERAGE_Y
1	210104	SCHNIDER F		0.36000	1291824	125931
2	211905	MILES CO		0.72000	1296661	110206
3	211905	HOLY FAMILY CHURCH		0.05800	1296661	110206
4	221204	KOMOTO J T / G		0.10100	1292436	152179
5	221304	Commons		0.00000	1292339	146882
6	223604	MIYAGISHIMA F		0.16700	1291990	131135
7	231404	TUKWILA CITY OF		1.11600	1287702	178815
8	231404	Foster		1.15000	1287702	178815
9	231404	Foster Memorial		1.15000	1287702	178815
10	240205	MORAVEC F		0.14400	1320052	220117
11	240205	Lake Hills Greenbelt		0.00000	1320052	220117
12	241105	LIND W		0.00600	1319914	214904
13	241105	Robinswood Community		0.00000	1319914	214904
14	241904	LIQUID CARBONIC CORP		1.42200	1267222	205671
15	242006	King County Dept. Of Natural Re		3.23100	1335507	203782
16	242006	L Sammamish St Park		0.00000	1335507	203782
17	242905	BELLEVUE SEWER DIST		0.64600	1303791	199407
18	243004	Riverview		0.17200	1267069	200334
19	250904	Calvary Cem		0.16300	1278798	247304
20	250904	Ravenna Park		0.20300	1278798	247304
21	251303	CHAMPION INTER CORP		6.46300	1262673	242371
22	251303	METRO-SEATTLE		0.33100	1262673	242371
23	251303	Interbay Golf		0.70000	1262673	242371
24	251604	UNIVERSITY OF WA		2.90800	1278656	242020
25	252104	Arboretum		0.79000	1278478	236735
26	252104	Montlake Playfield		0.11000	1278478	236735
27	252705	RUFFELL J R & B M		0.02400	1314829	230535
28	253004	TROY LAUNDRY COMPANY		0.36000	1267663	231669
29	253104	PUGET SOUND PO/LT CO		0.36000	1267587	226367
30	253104	DIAMOND ICE/STOR CO		0.17300	1267587	226367
31	260905	BROWN S J		0.36000	1310490	278114
32	260905	GARDEN VALLEY NURSRY		0.03200	1310490	278114
33	260905	Wilmont Gateway		0.00000	1310490	278114
34	261104	Tracy Owen		0.00000	1289424	278776
35	263205	THE PARK AT FORBES CREEK		0.30200	1304552	257149
36	263205	Crestwoods		0.31000	1304552	257149
37	263404	Sand Point		0.00000	1284173	257741

TABLE 3-2
Users Within 2000 feet of Sewage Conveyance System
With Flows of 3 mgd or Greater

NO.	IDENTITY	NAME	TYPE	MGD	AVERAGE_X	AVERAGE_Y
1	210104	SCHNIDER F		0.36000	1291824	125931
2	211905	MILES CO		0.72000	1296661	110206
3	211905	HOLY FAMILY CHURCH		0.05800	1296661	110206
4	221204	KOMOTO J T / G		0.10100	1292436	152179
5	221304	Commons	Park	0.00000	1292339	146882
6	222404	PICTSWEET FOODS INC		0.43200	1292242	141623
7	222504	LO PRIORE RICHARD		0.21600	1292146	136409
8	223105	JEFFS ORPHANS HOME		1.03400	1297179	131058
9	223205	MONSTAD A G		0.11500	1302353	130952
10	223604	MIYAGISHIMA F		0.16700	1291990	131135
11	230505	Renton Golf Range	Golf	0.70000	1303566	189029
12	230505	Renton Golf Range	Golf	0.00000	1303566	189029
13	230505	Gene Coulon	Park	0.00000	1303566	189029
14	230904	Hilltop	Park	0.06500	1277344	184326
15	231404	TUKWILA CITY OF		1.11600	1287702	178815
16	231404	Foster	Golf	1.15000	1287702	178815
17	231404	Foster Memorial	Park	1.15000	1287702	178815
18	231905	BONNELL NURSERIES		0.45200	1298030	173238
19	232504	The Boeing Company		1.43500	1292819	168068
20	232504	HILL F G		0.64600	1292819	168068
21	232504	STREULI O		0.38800	1292819	168068
22	233604	LOVE W G		0.28800	1292680	162793
23	240205	MORAVEC F		0.14400	1320052	220117
24	240205	Lake Hills Greenbelt	Park	0.00000	1320052	220117
25	240405	Kelsey	Park	0.02600	1309452	220363
26	241105	LIND W		0.00600	1319914	214904
27	241105	Robinswood Community	Park	0.00000	1319914	214904
28	241205	SEATTLE MUNICIPALITY		9.69400	1325213	214788
29	241205	Vasa	Park	0.06500	1325213	214788
30	241303	West Seattle	Golf	0.70000	1262217	211084
31	241303	Delridge	Park	0.00000	1262217	211084
32	241303	Puget	Park	0.00000	1262217	211084
33	241503	Schmitz	Park	0.00000	1251664	211398
34	241804	ASH GROVE CEMENT WEST, INC.		0.14400	1267342	210997
35	241806	Timberlake	Park	0.00000	1330307	209166
36	241904	LIQUID CARBONIC CORP		1.42200	1267222	205671
37	242006	King County Dept. Of Natural Re		3.23100	1335507	203782
38	242006	L Sammamish St Park	Park	0.00000	1335507	203782
39	242905	BELLEVUE SEWER DIST		0.64600	1303791	199407
40	243004	Riverview	Park	0.17200	1267069	200334
41	250505	Peter Kirk	Park	0.00000	1304561	252039
42	250904	Calvary Cem	Cem	0.16300	1278798	247304
43	250904	Ravenna Park	Park	0.20300	1278798	247304
44	251105	DICKEY FARMS INC		0.64600	1320341	246287
45	251105	TOWN CENTER ASSOCIATES		0.50400	1320341	246287
46	251303	CHAMPION INTER CORP		6.46300	1262673	242371
47	251303	METRO-SEATTLE		0.33100	1262673	242371
48	251303	Interbay Golf	Golf	0.70000	1262673	242371

TABLE 3-2 (cont)
Users Within 2000 feet of Sewage Conveyance System
With Flows of 3 mgd or Greater

NO.	IDENTITY	NAME	TYPE	MGD	AVERAGE_X	AVERAGE_Y
49	251403	GREAT NORTHERN RY CO		0.72000	1257403	242458
50	251604	UNIVERSITY OF WA		2.90800	1278656	242020
51	252104	Arboretum	Park	0.79000	1278478	236735
52	252104	Montlake Playfield		0.11000	1278478	236735
53	252303	Interbay Ath Fields	Park	0.03000	1257268	237168
54	252705	RUFFELL J R & B M		0.02400	1314829	230535
55	253004	TROY LAUNDRY COMPANY		0.36000	1267663	231669
56	253104	PUGET SOUND PO/LT CO		0.36000	1267587	226367
57	253104	DIAMOND ICE/STOR CO		0.17300	1267587	226367
58	260505	NORTHERN LIFE INS		1.29300	1305272	283542
59	260705	Wayne Golf Course	Golf	0.45200	1299807	278433
60	260705	Blyth	Park	0.12900	1299807	278433
61	260905	BROWN S J		0.36000	1310490	278114
62	260905	GARDEN VALLEY NURSRY		0.03200	1310490	278114
63	260905	Wilmont Gateway	Park	0.00000	1310490	278114
64	261104	Tracy Owen	Park	0.00000	1289424	278776
65	263105	Juanita Bay	Park	0.00000	1299183	257304
66	263205	THE PARK AT FORBES CREEK		0.30200	1304552	257149
67	263205	Crestwoods	Park	0.31000	1304552	257149
68	263404	Sand Point	Golf	0.00000	1284173	257741
69	263505	JAMES R C JR		0.48500	1320554	256827
70	263505	Willows Run	Golf	0.70000	1320554	256827

TABLE 3-3
Users Within 3000 feet of Sewage Conveyance System
With Flows of 3 mgd or Greater

NO.	IDENTITY	NAME	TYPE	MGD	AVERAGE_X	AVERAGE_Y
1	210104	SCHNIDER F		0.36000	1291824	125931
2	210605	NISHIMOTO J		0.10800	1297056	125864
3	210605	VICENTE J Q		0.07900	1297056	125864
4	210605	NAKAI H		0.07200	1297056	125864
5	210605	THE RIVER MOBILE HP		0.07200	1297056	125864
6	210605	Auburn	Golf	0.14200	1297056	125864
7	210605	Green River Golf	Golf	0.14200	1297056	125864
8	211905	MILES CO		0.72000	1296661	110206
9	211905	HOLY FAMILY CHURCH		0.05800	1296661	110206
10	221204	KOMOTO J T / G		0.10100	1292436	152179
11	221304	Commons	Park	0.00000	1292339	146882
12	222404	PICTSWEET FOODS INC		0.43200	1292242	141623
13	222504	LO PRIORE RICHARD		0.21600	1292146	136409
14	223105	JEFFS ORPHANS HOME		1.03400	1297179	131058
15	223205	MONSTAD A G		0.11500	1302353	130952
16	223604	MIYAGISHIMA F		0.16700	1291990	131135
17	230505	Renton Golf Range	Golf	0.70000	1303566	189029
18	230505	Renton Golf Range	Golf	0.00000	1303566	189029
19	230505	Gene Coulon	Park	0.00000	1303566	189029
20	230705	BOEING AIRPLANE CO		1.87200	1298286	183817
21	230904	Hilltop	Park	0.06500	1277344	184326
22	231404	TUKWILA CITY OF		1.11600	1287702	178815
23	231404	Foster	Golf	1.15000	1287702	178815
24	231404	Foster Memorial	Park	1.15000	1287702	178815
25	231504	RIVERTON CREST CEM		0.21600	1282435	178987
26	231504	Riverton Crest	Cem	0.21600	1282435	178987
27	231504	Southgate	Park	0.00000	1282435	178987
28	231705	STONEWAY DOCK CO		1.29300	1303392	178525
29	231705	Mount Olivet	Cem	0.02000	1303392	178525
30	231905	BONNELL NURSERIES		0.45200	1298030	173238
31	232504	The Boeing Company		1.43500	1292819	168068
32	232504	HILL F G		0.64600	1292819	168068
33	232504	STREULI O		0.38800	1292819	168068
34	240205	MORAVEC F		0.14400	1320052	220117
35	240205	Lake Hills Greenbelt	Park	0.00000	1320052	220117
36	240405	Kelsey	Park	0.02600	1309452	220363
37	240604	PUGET SOUND PO/LT CO		0.17300	1268091	220795
38	240604	Lakewood Park	Park	0.01600	1268091	220795
39	240604	White Center Park	Park	0.02300	1268091	220795
40	241103	Hiawatha	Park	0.00000	1257124	216551
41	241105	LIND W		0.00600	1319914	214904
42	241105	Robinswood Community	Park	0.00000	1319914	214904
43	241205	SEATTLE MUNICIPALITY		9.69400	1325213	214788
44	241205	Vasa	Park	0.06500	1325213	214788
45	241303	West Seattle	Golf	0.70000	1262217	211084
46	241303	Delridge	Park	0.00000	1262217	211084
47	241303	Puget	Park	0.00000	1262217	211084
48	241503	Schmitz	Park	0.00000	1251664	211398
49	241604	Jefferson	Golf	0.70000	1277879	210725
50	241804	ASH GROVE CEMENT WEST, INC.		0.14400	1267342	210997
51	241806	Timberlake	Park	0.00000	1330307	209166
52	241904	LIQUID CARBONIC CORP		1.42200	1267222	205671

TABLE 3-3 (cont)
Users Within 2000 feet of Sewage Conveyance System
With Flows of 3 mgd or Greater

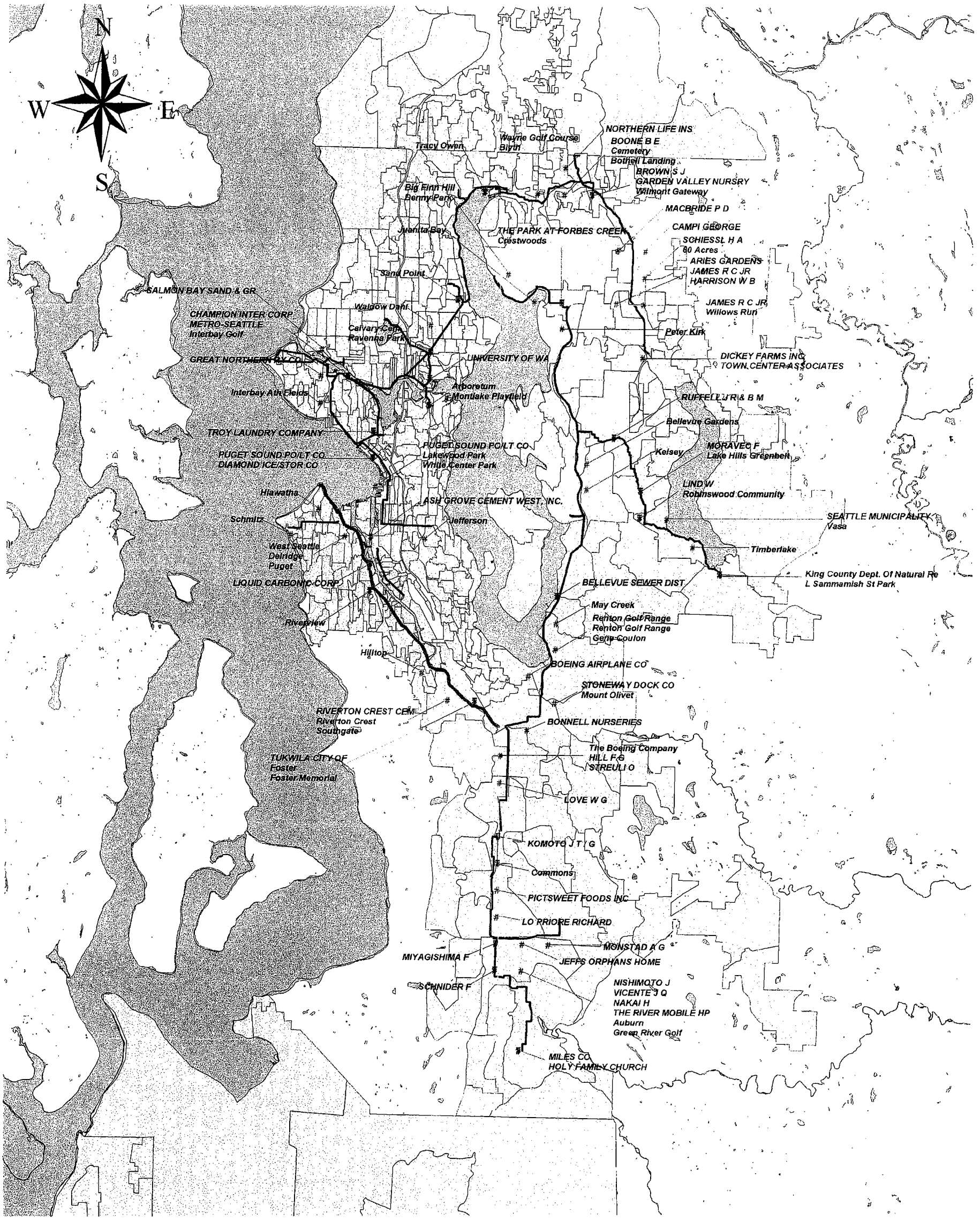
NO.	IDENTITY	NAME	TYPE	MGD	AVERAGE_X	AVERAGE_Y
53	242006	King County Dept. Of Natural Re		3.23100	1335507	203782
54	242006	L Sammamish St Park	Park	0.00000	1335507	203782
55	242905	BELLEVUE SEWER DIST		0.64600	1303791	199407
56	243004	Riverview	Park	0.17200	1267069	200334
57	243205	May Creek	Park	0.00000	1303665	194086
58	250404	Waldow Dahl	Park	0.00000	1278848	252602
59	250505	Peter Kirk	Park	0.00000	1304561	252039
60	250904	Calvary Cem	Cem	0.16300	1278798	247304
61	250904	Ravenna Park	Park	0.20300	1278798	247304
62	251103	SALMON BAY SAND & GR		0.64600	1257516	247754
63	251105	DICKEY FARMS INC		0.64600	1320341	246287
64	251105	TOWN CENTER ASSOCIATES		0.50400	1320341	246287
65	251303	CHAMPION INTER CORP		6.46300	1262673	242371
66	251303	METRO-SEATTLE		0.33100	1262673	242371
67	251303	Interbay Golf	Golf	0.70000	1262673	242371
68	251403	GREAT NORTHERN RY CO		0.72000	1257403	242458
69	251604	UNIVERSITY OF WA		2.90800	1278656	242020
70	252104	Arboretum	Park	0.79000	1278478	236735
71	252104	Montlake Playfield		0.11000	1278478	236735
72	252303	Interbay Ath Fields	Park	0.03000	1257268	237168
73	252705	RUFFELL J R & B M		0.02400	1314829	230535
74	253004	TROY LAUNDRY COMPANY		0.36000	1267663	231669
75	253104	PUGET SOUND PO/LT CO		0.36000	1267587	226367
76	253104	DIAMOND ICE/STOR CO		0.17300	1267587	226367
77	253305	Bellevue Gardens	Park	0.12900	1309531	225394
78	260505	NORTHERN LIFE INS		1.29300	1305272	283542
79	260705	Wayne Golf Course	Golf	0.45200	1299807	278433
80	260705	Blyth	Park	0.12900	1299807	278433
81	260805	BOONE B E		0.52600	1305116	278264
82	260805	Cemetery	Cem	0.02000	1305116	278264
83	260805	Bothell Landing	Park	0.00000	1305116	278264
84	260905	BROWN S J		0.36000	1310490	278114
85	260905	GARDEN VALLEY NURSRY		0.03200	1310490	278114
86	260905	Wilmont Gateway	Park	0.00000	1310490	278114
87	261104	Tracy Owen	Park	0.00000	1289424	278776
88	262205			2.58500	1315582	267510
89	262205	MACBRIDE P D		0.51700	1315582	267510
90	262305	CAMPI GEORGE		0.07200	1320911	267346
91	262504	Big Finn Hill	Park	0.04500	1294064	262768
92	262504	Denny Park	Park	0.00000	1294064	262768
93	262605	SCHIESSL H A		0.38800	1320733	262106
94	262605	60 Acres	Park	0.38800	1320733	262106
95	263105	Juanita Bay	Park	0.00000	1299183	257304
96	263205	THE PARK AT FORBES CREEK		0.30200	1304552	257149
97	263205	Crestwoods	Park	0.31000	1304552	257149
98	263404	Sand Point	Golf	0.00000	1284173	257741
99	263405	ARIES GARDENS		1.00800	1315216	256993
100	263405	JAMES R C JR		0.64600	1315216	256993
101	263405	HARRISON W B		0.38800	1315216	256993
102	263505	JAMES R C JR		0.48500	1320554	256827
103	263505	Willows Run	Golf	0.70000	1320554	256827

TABLE 3-4
Golf Courses, Parks and Cemetaries Within a Mile of Sewage Conveyance System With Flows of 3 mgd or Greater

NO.	IDENTITY	NAME	TYPE	MGD	AVERAGE_X	AVERAGE_Y
1	210605	Auburn	Golf	0.14200	1297056	125864
2	210605	Green River Golf	Golf	0.14200	1297056	125864
3	220605	Cleveland	Park	0.00000	1297670	157387
4	220705	Garrison Ck	Park	0.00000	1297602	152107
5	221304	Commons	Park	0.00000	1292339	146882
6	222304	Riverbend	Golf	0.70000	1286993	141704
7	222805	Gary Grant/Soos Ck	Park	0.00000	1307657	136116
8	223005	North Green River	Park	0.00000	1297306	136331
9	230504	Glen Acres	Golf	0.70000	1272169	189684
10	230505	Renton Golf Range	Golf	0.70000	1303566	189029
11	230505	Renton Golf Range	Golf	0.00000	1303566	189029
12	230505	Gene Coulon	Park	0.00000	1303566	189029
13	230904	Hilltop	Park	0.06500	1277344	184326
14	231404	Foster	Golf	1.15000	1287702	178815
15	231404	Foster Memorial	Park	1.15000	1287702	178815
16	231504	Riverton Crest	Cem	0.21600	1282435	178987
17	231504	Southgate	Park	0.00000	1282435	178987
18	231705	Mount Olivet	Cem	0.02000	1303392	178525
19	232005	Phillip Arnold	Park	0.00000	1303266	173252
20	232304	Ft Dent	Park	0.00000	1287600	173528
21	240105	Weowna Beach	Park	0.00000	1325319	220004
22	240205	Lake Hills Greenbelt	Park	0.00000	1320052	220117
23	240305	Sunset Hills	Cem	0.72000	1314723	220239
24	240405	Kelsey	Park	0.02600	1309452	220363
25	240505	Bellefields Nature	Park	0.00000	1304110	220495
26	240604	Lakewood Park	Park	0.01600	1268091	220795
27	240604	White Center Park	Park	0.02300	1268091	220795
28	241103	Hiawatha	Park	0.00000	1257124	216551
29	241105	Robinswood Community	Park	0.00000	1319914	214904
30	241205	Vasa	Park	0.06500	1325213	214788
31	241303	West Seattle	Golf	0.70000	1262217	211084
32	241303	Delridge	Park	0.00000	1262217	211084
33	241303	Puget	Park	0.00000	1262217	211084
34	241503	Schmitz	Park	0.00000	1251664	211398
35	241504	Genesee	Park	0.00000	1283148	210523
36	241604	Jefferson	Golf	0.70000	1277879	210725
37	241806	Timberlake	Park	0.00000	1330307	209166
38	242006	L Sammamish St Park	Park	0.00000	1335507	203782
39	242105	Coal Creek	Park	0.00000	1309157	204565
40	242105	Lake Heights	Park	0.00000	1309157	204565
41	243004	Riverview	Park	0.17200	1267069	200334
42	243104	Westcrest	Park	0.00000	1266894	195031
43	243205	May Creek	Park	0.00000	1303665	194086
44	250404	Waldow Dahl	Park	0.00000	1278848	252602

TABLE 3-4 (cont)
Golf Courses, Parks and Cemetaries Within a Mile of Sewage Conveyance System With Flows of 3 mgd or Greater

NO.	IDENTITY	NAME	TYPE	MGD	AVERAGE_X	AVERAGE_Y
45	250405	Kirkland Cem	Cem	0.04100	1309914	251871
46	250405	North Rosehill	Park	0.00000	1309914	251871
47	250505	Peter Kirk	Park	0.00000	1304561	252039
48	250904	Calvary Cem	Cem	0.16300	1278798	247304
49	250904	Ravenna Park	Park	0.20300	1278798	247304
50	251205	Marymoor	Park	0.11000	1325648	246145
51	251303	Interbay Golf	Golf	0.70000	1262673	242371
52	252004	Lakeview	Cem	0.16300	1273102	236847
53	252104	Arboretum	Park	0.79000	1278478	236735
54	252204	Broadmoor	Golf	0.79500	1283828	236607
55	252303	Interbay Ath Fields	Park	0.03000	1257268	237168
56	252403	Mt Pleasant	Cem	0.12200	1262537	237065
57	252403	Rogers	Park	0.00800	1262537	237065
58	252605	Cross Ponds	Park	0.00000	1320080	230403
59	252904	Volunteer	Park	0.00000	1272979	231555
60	252905	Hidden Valley Sports	Park	0.00000	1304324	230830
61	253305	Bellevue Gardens	Park	0.12900	1309531	225394
62	253405	Glendale	Golf	0.00000	1314776	225272
63	253405	Glendale	Golf	0.50400	1314776	225272
64	260104	Wallace Sump	Park	0.00000	1294861	283897
65	260304	Horizon View	Park	0.00000	1284375	284215
66	260705	Wayne Golf Course	Golf	0.45200	1299807	278433
67	260705	Blyth	Park	0.12900	1299807	278433
68	260805	Cemetery	Cem	0.02000	1305116	278264
69	260805	Bothell Landing	Park	0.00000	1305116	278264
70	260905	Wilmont Gateway	Park	0.00000	1310490	278114
71	261104	Tracy Owen	Park	0.00000	1289424	278776
72	261304	Moorlands	Park	0.00000	1294436	273336
73	261404	Inglewood Country Club	Golf	0.64600	1289253	273481
74	261405	Gold Creek	Park	0.00000	1321055	272640
75	261604	Acacia Cemetery	Cem	0.36000	1279064	273771
76	261604	Hamlin Park	Park	0.00600	1279064	273771
77	261605	East Norway Hill Park	Park	0.00000	1310300	272879
78	261805	Inglemoore/Moorland	Park	0.00000	1299590	273156
79	262504	Big Finn Hill	Park	0.04500	1294064	262768
80	262504	Denny Park	Park	0.00000	1294064	262768
81	262605	60 Acres	Park	0.38800	1320733	262106
82	262804	Bothel Way G Club	Golf	0.10300	1278959	263190
83	262804	Meadow Brook	Park	0.00000	1278959	263190
84	263105	Juanita Bay	Park	0.00000	1299183	257304
85	263205	Crestwoods	Park	0.31000	1304552	257149
86	263404	Sand Point	Golf	0.00000	1284173	257741
87	263504	Sand Point	Golf	0.65900	1289365	257589
88	263505	Willows Run	Golf	0.70000	1320554	256827



$ Users within 1000 ft
\# Users within 2000ft
\# Users within 3000ft
ETS Pipeline
KC Sewers >= 3MGD
KC Sewer Basins
Water Bodies

Figure 3-1
Potential KC Reclamation Water Users

Users Within 3000 feet of Sewers or Force Mains
of at least 3 mgd

Brown & Caldwell Engineering, April 2000

N
W
E
S

Tracy Owen
Moorlands
Wallace Sump
Wayne Golf Course
Horizon View
Blyth
Cemetery
Bothell Landing
Inglewood Country Club
Wilmont Gateway
Acacia Cemetery
Hamlin Park
East Norway Hill Park
Gold Creek
Bothel Way G Club
Meadow Brook
Inglemoore/Moorland
Big Finn Hill
Denny Park
Juanita Bay
Sand Point
60 Acres
Crestwoods
Willows Run
Waldo Dam
Calvary Cem
Ravenna Park
Peter Kirk
Kirkland Cem
North Rosehill
Interbay Golf
Sand Point
Mt Pleasant
Rogers
Lakeview
Arboretum
Marymoor
Interbay Ath Fields
Broadmoor
Volunteer
Hidden Valley Sports
Cross Ronds
Lakewood Park
White Center Park
Bellevue Gardens
Glendale
West Seattle
Delridge
Puget
Kelsey
Glendale
Sunset Hills
Hiawatha
Bellefields Nature
Lake Hills Greenbelt
Schmitz
Weowna Beach
Jefferson
Robinswood Community
Vasa
Genesee
Riverview
Timberlake
Coal Creek
Lake Heights
L Sammamish St Park
Westcrest
May Creek
Renton Golf Range
Glen Acres
Renton Golf Range
Gene Coulon
Hilltop
Foster
Foster Memorial
Riverton Crest
Southgate
Mount Olivet
Ft Dent
Phillip Arnold
Cleveland
Garrison Ck
Commons
North Green River
Riverbend
Gary Grant/Soos Ck
Auburn
Green River Golf

10 0 10 20 Miles

- Golf courses, Parks and Cemeteries
- ETS Pipeline
- KC Sewers >= 3 MGD
- KC Sewer Basins
- Water Bodies

Figure 3-2
Potential KC Reclamation Water Users

Golf Courses, Parks, and Cemeteries within 1 Mile
of Sewers or Force Mains of at least 3 mgd

March 2000, Brown & Caldwell Engineering

King County Reclaimed Water Assistance Program

Subtask 330 - Incorporate Information From Other County Projects Affecting the Reclaimed Water Program

PREPARED FOR: Tom Fox/KCDNR

PREPARED BY: Bill Persich/Brown and Caldwell
Art Griffith/CH2M HILL

COPIES: Rick Kirkby/KCDNR
Greg Bush/KCDNR
John Smyth/KCDNR

DATE: May 3, 2000

REVISED June 14, 2000
July 26, 2000

Introduction

The intent of Subtask 330 is to incorporate water reuse information developed from other King County Department of Natural Resources (KCDNR) programs, such as the Technology Evaluation program, SWAMP, Habitat Conservation Plan and the Third Treatment Plant Siting Study, into the current water reuse program efforts. In this way, KCDNR can move forward with an integrated vision of the future. However, at the time this technical memorandum was developed, final information from the other cited programs was not available. Therefore, this technical memorandum only provides information on the origin and use of appropriate cost estimating and financial evaluation tools to be used for subsequent cost determinations of specific reclaimed water projects.

The cost estimating tools to be used for developing project facility costs in the Reclaimed Water Assistance Program originated in earlier studies performed for KCDNR and will be modified as indicated herein. The cost estimating procedures are taken from either *Water Reclamation and Reuse: A Feasibility Study for the King County Metropolitan Area,* by ECONorthwest, December 1995 (1995 Report) or from the *Regional Wastewater Services Plan* (RWSP). The purpose of the 1995 Report was to consider the general feasibility of providing reclaimed water as a supplemental source of supply within the King County Department of Metropolitan Services service area. The 1995 Report included development of an inventory of potential reclaimed water users and a general assessment of the costs of providing these services. This earlier study developed costs for facilities with capacities of 0.1 mgd, 1.0 mgd, and 10.0 mgd, and for conveyance distances of 1,000 feet, 10,000 feet, and 50,000 feet. This array of costs, as a function of capacity and conveyance distance, was chosen to bracket the likely size ranges of potential facilities within King County.

The RWSP refined the sizing and costs for potential facilities that were being considered as options to meet KCDNR's wastewater needs.

Specifics of the 1995 Report cost estimating model and procedures used in the RWSP are not described in this technical memorandum. Instead, the current procedures are described in detail and changes from the referenced documents are noted.

Cost Estimating Procedures

The following paragraphs provide a summary of the cost estimating procedures. Generally, the procedures are consistent with those developed in the RWSP; however, some specifics from the 1995 Report are used, and the reader is referred to both documents for additional detailed description. The costs used in the 1995 Report were derived from Environmental Protection Agency (EPA) cost curves which were used for the purposes of comparing relative economies of processes. When the specific cost of a particular project is desired, a more detailed investigation will be required. In the current evaluation, the following percentages are added to the base construction cost: 25% contingency, 8.6% sales tax, and 35% engineering/legal/administration. The percentages used to adjust the base construction costs are consistent with the RWSP, with the exception of sales tax, which has increased from 8.2% to 8.6% in most locations. Costs are escalated from 1995 dollars to 2000 dollars using the Engineering News Record (ENR) Seattle Construction Cost Index (CCI) with a ratio of 7151/5800.

Secondary Treatment Capital Costs

Secondary treatment capital costs are based on a base construction cost estimate for a secondary treatment plant and a lift station. The base construction costs for the 1995 Report were developed from EPA cost curves. Where necessary, interpolation is used to determine costs of facilities whose sizing falls between the size criteria shown in the 1995 Report. In addition, lift stations costs were reduced to 10 percent of the original base cost where existing pumps are available in the vicinity of the projected lift station location.

Tertiary Treatment Capital Costs

In the 1995 Report, separate cost estimates were identified for the components of a tertiary treatment process including a filtration process, a chlorination system, an alum and polymer chemical feed system, and filtration feed pumping facilities. Interpolation is used to determine costs of facilities whose sizing falls between the size criteria shown in the 1995 Report.

Distribution System Capital Costs

A similar methodology is used for the distribution system capital costs as is used for the tertiary treatment capital costs. Distribution system components include a pump station, piping, and storage facilities to allow for delivery of peak hour flow to non-golf course applications. Reclaimed water is delivered to golf course sites on a peak day basis. In addition, the following factors influenced the distribution system capital costs:

- All golf course users are assumed to have on-site ornamental ponds for storage of reclaimed water. Satellite reclamation facilities will not include storage for water to be delivered to golf courses.

- Storage tanks for reclaimed water are located at the satellite reclamation facilities serving all non-golf course applications.
- Water pressure at the point of delivery to golf courses is near zero psig. Pumping systems incorporate piping friction losses and static elevation differences created by topography.
- Generally, water pressure at the point of delivery to facilities other than golf courses is 20 psig. Pumping systems incorporate piping friction losses and static elevation differences created by topography.
- Pipelines delivering reclaimed water to golf courses are sized to meet peak day demands.
- Pipelines delivering reclaimed water to facilities other than golf courses are sized to meet peak hour demands.
- Irrigation for all users will be assumed to occur 10 hours per day during the irrigation season.
- When the satellite plant is located a distance from the point of connection to the sewer system, a second pipe is added to return the solids to the sewer system. It is assumed that the installation of this additional pipe would benefit from a common trench installation and the costs are reduced by 50 percent for this additional pipe.

Operation and Maintenance Costs

Operation and maintenance (O&M) costs are estimated separately by system component. The general format is the same as that for the 1995 Report, with costs adjusted for changes in the ENR Seattle CCI . Operation of the facilities for five months during the year is anticipated. Additional factors used to develop O&M costs are:

- Annual maintenance for pumps, pipelines, and storage facilities is 0.5% of the construction cost
- Power costs are based on a pump efficiency of 75% and a power cost of 4.2 cents/kWh
- Pump labor hours range from 40 – 85 hours per month, depending on the capacity of the pump station
- Labor costs are $55.50 per hour
- Tertiary treatment O&M costs are based on estimated chemical dose rate, labor requirements, and electricity requirements, with an additional annual maintenance cost for the chlorine contact tank and the filtration system of 1% of the construction cost
- Secondary treatment O&M costs are estimated to be approximately $500 per million gallons of treatment plant flow. O&M costs for a raw water lift station are estimated based on estimated pumping, labor, and maintenance requirements

Financial Evaluation Procedures

The financial analysis consists of calculating a levelized cost, in dollars per hundred cubic feet ($/ccf) of reclaimed water sold, and is generally consistent with the methodology in the 1995 Report. Levelized costing is a procedure whereby the present value of a series of costs are calculated over a specified length of time, then those costs are amortized over the same

specified length of time. It provides a methodology for comparing different alternatives on a common basis.

The levelized cost is computed over a 35-year period at a net discount rate of 3%. Capital costs are paid up-front at the beginning of the year they are incurred; however, these costs will be financed over a 35-year period at an annual interest rate of 6.25 percent. A salvage value for capital facilities is included, based on static facilities (pipes and structures) having a 75-year useful life. As in the 1995 Report, 80% of the distribution system facilities and 50% of the treatment facilities are considered static facilities with a 75-year useful life. O&M costs are paid in years 2 through 50. The levelized cost is determined by dividing the volume of water produced for the 35-year period by the water sales volume for the 35-year period.

King County Reclaimed Water Assistance Program

Subtask 350 – Water Reclamation Funding Mechanisms

PREPARED FOR: Tom Fox/KCDNR

PREPARED BY: Charlie Doughtery/RW Beck
Dave Parkinson/CH2M HILL

COPIES: Greg Bush/KCDNR
John Smyth/KCDNR

DATE: April 11, 2000
REVISED DATE November 16, 2000

Background

King County Department of Natural Resources (KCDNR) solicited project nominations from potential reclaimed water users in King County to evaluate the region's need and ability to support water reclamation demonstration project(s). The purpose of this technical memorandum is to identify potential sources for grant or low interest loan monies that may be available from state and federal sources to assist in funding the demonstration projects. For each potential source of funding, a brief description of the process for acquiring the funds, along with an approximate time-line for application, are provided.

Summary

While there are a number of potential funding sources that could be available to assist in funding water reclamation demonstration project(s), the requirements and timing for submitting applications vary significantly. The likelihood of KCDNR obtaining funding for water reuse projects will vary depending on project elements and the status of funds and eligibility requirements at the time of submittal. Table 1 presents a summary of the annual application cycle for the identified potential funding sources.

TABLE 1
Potential Funding Mechanisms

Source	Fund	Type	For Fiscal Year	Application Deadline
Department of Ecology	Centennial Clean Water Fund	Grant/Low Interest Loan	2002	February 2001
	Section 319	Grant	2002	February 2001
	State Revolving Loan Fund	Low Interest Loan	2002	February 2001
Public Works Trust Fund	Planning Loan Program	Low Interest Loan		Ongoing
	Pre-construction Loan Program	Low Interest Loan		October
	Construction Loan Program	Low Interest Loan		May
Salmon Recovery Funding Board	Salmon Recovery Funding	Grant		Fall
US Bureau of Reclamation	Title XVI	Grant	2002	
EPA	Point Source 104B3	Grant		Ongoing

Potential Funding Sources

Washington State Department of Ecology

The Washington State Department of Ecology's (Ecology) Water Quality Program administers three major funding programs that provide grants and low-interest loans for which KCDNR's Water Reclamation Program may qualify. As much as possible, Ecology manages the three programs as one; therefore, there is one funding cycle, application form, and offer list. The three programs sharing guidelines, applications, and funding cycle are:

- Centennial Clean Water Fund (Centennial) provides grants and low-interest loans to construct wastewater treatment facilities and fund-related activities to reduce nonpoint sources of water pollution.
- State Revolving Loan Fund (SRF) provides low-interest loans to construct wastewater treatment facilities and related activities, or to reduce nonpoint sources of water pollution.
- Section 319 Nonpoint Source Grants Program (Section 319) provides grants to reduce nonpoint sources of water pollution.

Ecology has funded water reuse planning and facilities in the past and when contacted were positive with regards to water reclamation. It is highly recommended that organizations

interested in applying for funding attend one of the funding workshops sponsored by Ecology in January of each year.

Process and Time-line for Application

As noted above, Ecology manages the three programs as one; therefore there is one funding cycle, application form, and offer list. The application cycle for Fiscal Year (FY) 2001 has been closed. The Funding Cycle for FY 2002 has not been established at this time; however, Tim Hilliard of Ecology stated that FY 2002 will be very similar to the FY 2001 Proposed Funding Cycle shown below in Table 2.

TABLE 2
FY 2001 Centennial/SRF/Section 319 Proposed Funding Cycle

Date	Event
January 3, 2000	Application Cycle Opens
January 5 – 12, 2000	Funding workshops in Tacoma, Everett, Spokane, and Yakima
February 1, 2000	"Open House" for applicants, held in Spokane **
February 3, 2000	"Open House" for applicants, held in Bellevue **
February 29, 2000	Application Cycle Closes
March 1 – May 12, 2000*	Application Processing and Establishment of Funding Priorities
April 14, 2000	Deadline for submitting "Statement of Agreed Priority" (Local Prioritization Process)
May 31, 2000*	Draft Offer List Issued
May 31 – June 30, 2000*	30-day Public Review and Comment Period
June 7, 2000*	Public Meeting to Present Draft Offer List
July 31, 2000*	Final Offer List Issued
July 31, 2000*	Funding Notification Letters Sent

* Proposed dates.
** Staff will be available for questions, one-on-one discussions, etc.

Appendix A contains Ecology Guidelines (Volume One and Two) for the above funding programs. Volume One describes how to apply for water quality financial assistance from Ecology. The guidelines also explain what will be required of an applicant if a grant or loan is awarded. Volume Two of the Guidelines are the Program Appendices. They contain additional information that will be useful to most applicants.

Washington State Public Works Board

The Public Works Trust Fund (PWTF) has three loan programs for which KCDNR's Water Reclamation Program may qualify. The PWTF is a low interest revolving loan fund designed to help local governments finance critical public works. Each of the three programs has its own application and funding cycle. The three programs are:

- Public Works Planning Loan Program provides financial assistance for the long-term Capital Facilities Plan (CFP) or Comprehensive System Plans, (which include a CFP). *Loan Limit: $50,000*

- Pre-Construction Loan Program provides help to local governments to accelerate the construction of eligible public work improvements and to provide more flexible financing options. These funds may be used for pre-construction activities only.
  Loan Limit: $1,000,000 per biennium
- Construction Loan Program provides low interest loans to help local governments maintain and improve essential public works systems.
  Loan Limit: $10,000,000 per biennium

Process and Time-line for Application

Application Guidelines* are included in Appendix A and can be obtained from Isaac Huang (Regional Account Executive for PWTF) or website: www.crab.wa.gov.pwtf

- Public Works Planning Loan Program: the application cycle for the Planning Loan is ongoing and is subject to the availability of funds.
- Pre-Construction Loan Program: there is one funding cycle a year, with applications accepted in October. Funds are made available after Board approval of projects in December.
- Construction Loan Program: there is one funding cycle a year, with applications accepted in May. All projects require legislative approval. Funds will be made available after the Governor has signed the legislation.

(* The PWTF Application Guidelines [enclosed in Appendix A] are divided into three volumes. Volume 1 is shared by all three of the loan programs and is an overview of the Trust Fund and the different programs. Volume 2 contains the actual forms necessary to apply for a loan. Each of the three loans has its own Volume 2. Volume 3 is shared by all three of the loan programs and is the Appendix with relevant information, policies, and statutes.)

Salmon Recovery Funding Board

The Salmon Recovery Funding Board (SRFB) was created in the 1999 Legislature to develop procedures and criteria for allocating funds for salmon habitat and salmon recovery activities. The Board is a panel of experts concerned with maximizing the benefit to salmon from the available funding.

SRFB Staff Funding Recommendation (3/10/00) included $2,370,000 for KCDNR. The board would be receptive to projects that augment the summer flows of salmon bearing streams.

Process and Time-line for Application

According to Jim Fox, the Salmon Recovery Funding Board contact, the next grant cycle will occur in the fall of 2000 ($20-$25 million). Guidelines for funding are expected to be published in June 2000 and should be similar to Early 2000 guidelines. For example purposes, Appendix A contains Instructions For Lead Entities. This document was for Early 2000 cycle only.

Applicants for grants are encouraged to use PRISM, an automated Grant Management System, developed for the Interagency Committee for Outdoor Recreation (IAC), to be used by applicants and sponsors, agency, legislative, and budget staff. The automation begins

with on-line grant applications, assists grant evaluations, produces contract documents, management reports, and maps, tracks billings and concludes with the grant close-out and monitoring phase. Many aspects of PRISM are applicable to any kind of grant (recreation, critical habitat, salmon recovery, etc). Some data and features are specific to a type of grant. The PRISM website address is: http://www.wa.gov/iac/srfbprism.html

US Bureau of Reclamation

The US Bureau of Reclamation (USBR) has embraced water reclamation as a key component of its mission. Title XVI (a section of federal law) empowers the USBR to fund water recycling projects (planning, design and construction) at the local and regional levels. The USBR is authorized to enter into construction grants, covering up to 25 percent of project capital costs for several water recycling projects in different parts of the state.

Process and Time-line for Application

Construction funds can be provided only for projects specifically authorized by Congress in accordance with Title XVI. Annually the USBR will assess feasibility reports prepared for authorized projects and will then apply its criteria to prioritize funding recommendations to Congress. The USBR will place priority on projects that accomplish the following:

- Reduce, postpone, or eliminate development of new or expanded water supplies;
- Reduce or eliminate the use of existing diversions from natural watercourses;
- Reduce the demand on existing Federal water supplies;
- Improve surface or groundwater quality, or the quality of effluent discharges, except where the purpose is to meet surface discharge requirements;
- Help fulfill USBR's legal and contractual water supply obligations, such as Indian trust responsibilities; and
- Serve the Federal environmental interests in restoring and enhancing habitats and providing water for federally threatened and endangered species.

USBR will also place priorities on projects that:

- Promote and apply a regional perspective
- Serve a Native American community
- Serve a small, rural, or economically disadvantaged community
- Provide significant economic benefits

Lead time for funding can be significant. The FY 2002 Reclamation Budget has been prepared and will be in Senate hearings during mid-April 2000. The FY 2003 Reclamation Budget will be prepared summer 2000.

United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) provides funding to Washington State for the State Revolving Fund which provides loans for a number of infrastructure projects including water recycling projects. While EPA has provided grants for water recycling projects through its construction grants program, the construction grants program has recently been replaced by the State Revolving Fund program.

Through the EPA Point Source 104B3 Fund, EPA receives $125,000 annually to distribute to nonprofit organizations for point source pollution mitigation within the state of Washington. Projects dealing with TMDL and nutrient evaluation are the type of projects that have received funding most recently.

According to Bettina Stokes (contact for Point Source 104B3 Fund) there is also money allotted to Washington State for nonpoint source pollution mitigation under EPA's NonPoint Source Monies. The contact for this fund (Tina Reichjolt 206.553.1601) was not in the office.

Process and Time-line for Application

Initially there is not a formal application process for Point Source 104B3 funds. Interested organizations submit proposals to "sell" their project. Projects selected are than asked to submit the appropriate paperwork to receive the grant monies. The contact in Seattle is Bettina Stokes (206.553.2575).

A summary of potential funding mechanisms is provided in Table 3. The liklihood of obtaining funding for reuse projects will depend on project elements and the status of funds and requirements at the time of the funding request submittal.

TABLE 3
Summary of Potential Funding Mechanism

Source	Fund	Type	Application Cycle	Workshop	Contact
Department of Ecology	Centennial	Grant Low Interest Loan	Annual Deadline: Feb	January	Kim McKee 360.407.6566
	State Revolving Fund	Low Interest Loan	Annual Deadline: Feb	January	Brian Howard 360.407.6510
	Section 319	Grant	Annual Deadline: Feb	January	Dan Filip 360.407.6426
Public Works Trust Fund	Planning Loan Program	Low Interest Loan	Ongoing	N/A	Isaac Huang 360.586.0659
	Pre-Construction Loan Program	Low Interest Loan	Annual Deadline: Oct	N/A	Isaac Huang 360.586-0659
	Construction Loan Program	Low Interest Loan	Annual Deadline: May	March	Isaac Huang 360.586-0659
Salmon Recovery Funding Board	Salmon Recovery Funding	Grant	Semiannual Deadline: Probably Sept. (TBD)	(prior to grant cycle)	Jim Fox 360.902.3021
US Bureau of Reclamation	Title XVI	Grant	Annual	N/A	Monte McCendon 208.378.5036
EPA	Point Source 104B3	Grant	Annual Deadline: Feb	N/A	Bettina Stokes 206.553.2575

Probability acquisition will vary depending on project details and status of funds at time of submittal.

APPENDIX A

Funding Program Guidelines and Instructions

Available upon request

King County Reclaimed Water Assistance Program

Subtask 360 – Steps to Implement a Generic Satellite Plant

PREPARED FOR: Tom Fox, KCDNR

PREPARED BY: Bill Persich, Brown and Caldwell
Shannon Wilbur, CH2M HILL
Patricia Tennyson, Katz and Associates
Molly Adolfson, Adolfson and Associates

COPIES: Nancy Davidson, KCDNR
Greg Bush, KCDNR
John Smyth, KCDNR

DATE: May 3, 2000

There are standard phases and steps required for the implementation of a reclaimed water plant, regardless of its size or location. This technical memorandum presents the four phases—Planning, Pre-Design, Design, and Construction—and a general discussion of the steps required within each phase to implement a generic satellite plant. Table 1 presents a summary of each phase.

TABLE 1
Summary of Phases Required to Implement a Generic Satellite Plant

Phase	Steps[a]	Time Frame
Planning	– Identify application and treatment sites – Initiate public involvement – Complete SEPA process – Prepare feasibility report	12-15 months
Pre-Design	– Evaluation conveyance and treatment alternatives – Continue public involvement – Conduct risk assessment and identify operational needs – Develop cost estimates – Prepare supplemental EIS – Prepare engineering report	9 months
Design	– Prepare contract documents – Obtain permits – Continue public involvement	13 months
Construction	– Construction activities – Start-up, Training and Commissioning – One Year Certification	24-29 months

[a] Depending on the specifics of the satellite plant projects, the duration of some steps may vary or may be eliminated.

Figure 1 shows the steps within each phase and where they fit into the overall schedule. The activities and the sequence of events associated with each phase of project implementation are described below.

PLANNING PHASE (PL)

For a reclaimed water plant, the Planning Phase is used to define the various project elements including treatment processes, ancillary facilities, size, and location; to identify site constraints, environmental and permitting requirements, and regulatory issues; and to make preliminary estimates of the project cost in order to identify potential funding options. The steps listed below for the Planning Phase (PL1 through PL10) are not shown in a sequential order; some must be conducted simultaneously, as demonstrated in Figure 1. In general, the Planning Phase takes from 12 to 15 months.

PL1. Identify Potential Reclaimed Water Application Sites

The first step is to identify potential sites for application of reclaimed water. The type of use, the quantity, and the quality of reclaimed water needed at each potential application site must be considered for both short-term and long-term planning horizons. The demand for reclaimed water, the location of a reclaimed water source, and other considerations are influenced by the characteristics and locations of the project application sites. The Planning Phase is also the time to begin initial discussions with the owners of potential application sites to determine their willingness to use reclaimed water. This is also covered in Step PL4.

PL2. Identify Purveyors that Currently Provide Water to the Potential Reclaimed Water Application Sites

Water purveyors that currently serve areas considered for application of reclaimed water may be affected by the application of reclaimed water in their service area. If customers convert to reclaimed water it would reduce the demand for potable water in the service area and, therefore, would reduce revenue for the current water purveyor. In addition, cross-connection control requirements may result in conflicts between the water purveyor's infrastructure and the distribution piping used to distribute reclaimed water. Thus, it is important to identify and coordinate with the water purveyor(s) who are currently providing potable water to the potential reclaimed water application sites.

PL3. Identify Initial Sites for Water Reclamation Treatment Facilities

The site ultimately selected for water reclamation treatment facilities is primarily a function of the proximity of the potential reclaimed water application sites and the amount of space required for the facility. Several sites should be identified to be included in an initial screening process. The screening process will require coordination among groups of stakeholders for each site; these could include public agencies, neighborhood groups, water districts, and others. Screening criteria must be developed and a decision or ranking process must be undertaken to reduce the number of alternative sites to be considered for the next phase.

PL4. Public Outreach

In accordance with the public outreach strategy currently being developed for the King County Reclaimed Water Program, early and frequent public outreach and involvement set the stage for successful implementation of the water reuse program. For this reason,

intensive public involvement activities commence at the earliest point in the planning phase. These activities are coordinated with and support the technical work, and result in recommendations or other input to be included in the design and environmental criteria. A broad group of stakeholders are identified and interviewed, including local legislators, residents, businesses, schools, potential reclaimed water users, etc. An advisory committee is formed to assist with site selection. Their recommendations are included in a report to local policy makers to demonstrate support for the project and its location. Specific educational tools are designed and produced, such as fact sheets and brochures, and a project newsletter and web site are established and coordinated with KCDNR public affairs unit. Some general or regional outreach efforts also begin during this phase.

PL5. Assess Existing Wastewater Conveyance Infrastructure at Proposed Reuse Facility Sites

After specific sites have been identified for water reclamation facilities, the condition and capacity of existing wastewater collection and transfer facilities must be evaluated relative to the proposed production capacity of the reclamation facilities. This effort quantifies the extent and cost of any modifications to the existing infrastructure that may be necessary to support water reclamation facilities at each potential site.

PL6. Develop Preliminary Environmental Criteria

After potential application sites and treatment facility sites have been identified, a preliminary list of the permitting requirements, regulations, reclaimed water quality requirements, and environmental documentation requirements anticipated for the application sites can be prepared. This provides the basis for the environmental documentation (e.g., environmental impact statement) that will be required during the Pre-Design Phase. Factors considered include such elements as the presence of sensitive habitats, endangered species and/or other unique environmental resources; potential for surface and/or groundwater contamination; potential for groundwater and streamflow augmentation; aesthetics; potential for slope instability; nearby land use, zoning and comprehensive plan designations; and other factors. This information can be summarized in a matrix, which includes permitting requirements, accompanying schedule implications, and a qualitative assessment of relative permitting "risk" for approval.

PL7. Identify Governance Issues

After identifying alternative project (application and treatment facility) site locations, governance issues for the potential application sites are identified and a plan developed for resolving potential conflicts. Risk management issues, water rights, health and safety requirements, signage, and delineation of responsibilities for operating and maintaining the reclaimed water facilities and application sites should be addressed and substantially resolved before the Pre-Design Phase begins.

PL8. Prepare Site-Specific Feasibility Report

The findings from the previous steps are used to prepare a site-specific feasibility report for the alternative sites selected for the reclaimed water treatment facilities and the sites selected for reclaimed water application. The report includes discussions of the application sites and water quality and quantity requirements, reclaimed water treatment processes, conveyance requirements, and planning-level cost estimates that can be used to identify potential funding options, as well as input provided by the public working committee.

PL9. Complete SEPA Process

Environmental characteristics of each potential site can be summarized in a matrix to be evaluated during the feasibility study. This matrix is supported by a technical memorandum summarizing environmental characteristics and regulatory requirements at each of the potential sites. This information is used to determine the appropriate level of environmental documentation for the process to comply with the State Environmental Policy Act (SEPA).

Based on the relatively untested nature of reclamation projects in the Puget Sound area, it is anticipated that the existing programmatic environmental impact statement (EIS) previously developed for the Regional Wastewater Services Plan (RWSP) will be utilized. For this technical memorandum, it has been assumed that a project-specific EIS will be prepared as a supplement to the programmatic EIS. A meeting with KCDNR would be required to determine whether the document should be prepared consistent with the National Environmental Policy Act (NEPA) as well, depending on potential funding options available for the project, or other potential federal approvals or involvement in the project. The EIS identifies and evaluates the potentially feasible sites, describes in detail the evaluation process, and discusses facility configuration options at each site. Conveyance options could also be identified.

PL10. Communications with Stakeholder Agencies

Steps PL2 and PL4 mentioned the need to communicate with water purveyors and site-specific stakeholders. In addition, discussions should be held with potential stakeholder agencies such as King County, county councils with jurisdiction over the application sites, cities who are not water purveyors, departments of health, and the Washington State Department of Ecology (Ecology). It is critical that stakeholder comments be obtained early during the process so that there is sufficient time to incorporate and/or negotiate specific comments. Communication with stakeholder agencies should begin after specific sites have been proposed for water reclamation facilities (Step PL3). Since the public involvement process will also incorporate communication strategies and tactics related to stakeholder agencies, coordination with the public outreach process will be critical.

PRE-DESIGN PHASE (PD)

The Pre-Design Phase builds on the efforts of the Planning Phase. In general, all aspects of the Planning Phase should be complete before beginning the Pre-Design Phase because site conditions, regulations, and other issues identified during the Planning Phase are affected by the design requirements and configurations developed during the Pre-Design Phase. The concerns of stakeholders and the public are addressed in the design criteria and requirements for the water reclamation facilities and application sites. The outcome of the Pre-Design Phase is the presentation of a recommended water reuse project to move forward into detailed design. As shown in Figure 1, the duration of the Pre-Design Phase can be as much as 9 months.

PD1. Evaluate Site Build-Out Requirements

The water reclamation facility site(s) must be evaluated to determine the most suitable facility configuration. Site build-out considerations include opportunities to avoid inter-

stage pumping, minimize the complexity of yard piping, determine what facilities are required to supply the ultimate production capacity for reclaimed water, and determine the space required on the site for the facilities. Water reclamation facility sites should also be configured to allow for ease of future expansion of the facility. Standby capacity requirements and reliability criteria are also considered when determining site build-out requirements.

PD2. Evaluate Treatment Alternatives

There are a variety of wastewater treatment and water reclamation technologies available to provide reclaimed water for various uses. Treatment alternatives are evaluated in parallel with the evaluation of the water reclamation facility site. Different treatment technologies have different costs and site space (footprint) requirements. In addition, facilities and treatment alternatives are typically more expensive if the space for facility installation is limited. For KCDNR, the Reuse Technology Assessment Program results can be incorporated into this task.

PD3. Evaluate Conveyance Alternatives

Alternative routes and methods for delivery of wastewater to the reclamation facilities for treatment and production are evaluated. Alternative routes and methods for storage and distribution of reclaimed water facilities are also evaluated to optimize the facility characteristics. These alternatives can include modifications at the application sites to improve storage and distribution of reclaimed water.

PD4. Public Involvement

During pre-design, it is necessary to reconvene the advisory committee, and perhaps to augment its membership with affected interests. The committee provides input regarding conveyance routes and specific treatment site alternatives. Targeted education and information to businesses, schools, or residents along the proposed routes is needed to obtain their input and ensure awareness of proposed schedules and impacts. Information materials can be developed on specific topics, such as risk, safety and cost. There is also outreach to local legislators and media about specific proposals and associated topics. Tactics such as a speakers bureau and open house format meetings can be implemented. General or regional outreach might focus on safety and benefits of reclaimed water.

PD5. Evaluate Real Estate Needs

After the conveyance alternatives have been examined, any additional land requirements, easements, and/or rights-of-way are identified and acquired. If additional land must be purchased, the landowners should be identified and negotiations initiated.

PD6. Risk Assessment and Risk Management

A risk assessment of the selected treatment alternative and applications can be developed to advise and educate King County staff and the public of the potential risks associated with water reuse. A risk management plan helps to ensure that public health risks, safety hazards, and liability are minimized throughout the life of the reuse project. The 1993 *Metro Effluent Reuse Baseline Risk Assessment* can be used as a starting point for this step. That study conducted a baseline risk assessment to evaluate potential human health and ecological impacts associated with reclaimed water and evaluated pilot study data to identify reductions in risk to humans, aquatic life and wildlife from additional treatment.

Since this risk assessment has already been performed for irrigation uses of reclaimed water, it is assumed that the existing assessment is adequate for this purpose. Therefore, the time required for Task PD6 in the schedule (figure 1), has been set to zero days duration. If an additional risk assessment study is required for non-irrigation based applications of reclaimed water, this activity could add approximately one to two additional months to the total schedule duration.

PD7. Identify Facilities Operational Needs

After the risk assessment and risk management plan have been completed, the operational requirements for the water reclamation facilities and application sites can be determined. The number of staff and the level of expertise required to operate and maintain the facilities can be estimated; power requirements for the facility and power supply sources can be calculated; and consumption rates for treatment chemicals, electric power, and other utilities can be projected and used to determine anticipated costs for operation of the facilities.

PD8. Develop Cost Estimates

A project cost estimate for the treatment and conveyance alternatives selected in the SEPA process is developed. The cost estimate includes all capital, operation and maintenance costs, and, in addition, allied costs (e.g., engineering, legal, and administrative). Using the capital and operation and maintenance cost estimates, the anticipated unit cost to produce reclaimed water can be calculated. Funding for the project can be sought based on these preliminary project cost estimates.

PD9. Develop Business Plan

After the cost estimate and unit cost of reclaimed water are determined, the general business plan previously developed for projects of this nature can be reviewed and amended. The business plan is the basis for determining the expected return on KCDNR's investment, anticipated revenue from reclaimed water sales, and the unit cost of reclaimed water charged to consumers of reclaimed water.

PD10. Refine Governance Issues

Governance issues can be refined and reevaluated for consistency with the governance issues previously developed for these projects after the business plan is complete. Agreements for sale of reclaimed water and delineation of responsibilities for operation, maintenance, and liability can be finalized before the Design Phase begins.

PD11. Prepare Project-Level SEPA Environmental Review

A project-level SEPA environmental review occurs during the pre-design phase of the project. This review can take the form of a project-level Supplemental EIS, an addendum to the previously-prepared programmatic EIS, or though a mitigated determination of non-significant (DNS) and the permit process, depending on the extent of revisions to the proposal and the nature of site-specific impacts that were not able to be addressed in the programmatic EIS. All permits required for the project are identified during this project-level SEPA environmental review step. At this point, the application process begins for long-lead permits such as conditional use permits and federal approvals, such as the Corps of Engineers permits or Geological Assessments for the National Marine Fisheries Service (NMFS) or the U.S. Fish and Wildlife Service (USFWS), if necessary.

PD12. Communication with Stakeholder Agencies

After governance issues have been refined, communications with stakeholder agencies are renewed to ensure that stakeholders are aware of current issues and that they are satisfied with the project at the end of the Pre-Design Phase. Any new requirements of the stakeholder agencies should be incorporated into the project before the Pre-Design Phase is completed. It is important to coordinate this communication with the public outreach process which incorporates regular updates/communications to agencies.

PD13. Prepare Engineering Report

After all of the Planning Phase and Pre-Design Phase steps are complete, a draft engineering report for the water reuse project is prepared. The Engineering Report incorporates the available information for the alternatives still under consideration. A draft of the report is submitted to stakeholders for review and comment. It is important for the public to be satisfied with the preliminary design (pre-design) before starting actual design of the facility. The final Engineering Report is developed in sufficient detail to complete the first 10 to 20 percent of the design effort required for the project and to begin the permit procurement process.

DESIGN PHASE (DE)

During the Design Phase of the project, contract documents are prepared for construction of the preferred alternative of the water reclamation facilities identified during the Pre-Design Phase. Design work includes design of the water reclamation (satellite) plant, facilities at the application sites, conveyance piping for distribution of reclaimed water, conveyance piping required to deliver wastewater to the reclamation plant, piping required to deliver residual solids to the sewer system, and mitigation facilities and features. The design conforms to the design criteria, comments from the public, site constraints, regulations, and permit conditions defined during the Pre-Design Phase.

The steps of the Design Phase presented herein are based on a conventional public works contracting method (design/bid/build). The length of time allowed for the Design Phase varies substantially depending on the facilities that are included in the design. As presented in Figure 1, the Design Phase for a reclaimed water project is estimated to have a duration of 13 months.

DE1. Prepare Design Documents

Project design reviews are normally conducted when design activities are 50 percent complete and again when they are 90 percent complete. If construction activities are completed via two or more construction contracts, design reviews should be performed for each set of contract documents. Revised cost estimates and preliminary construction schedules are typically prepared from the documents that were prepared for each design review. All design activities should proceed concurrently to improve coordination between the construction contract documents.

The 50 percent design review should include enough information for the project owner to determine if the design conforms to the design standards and project requirements developed during the Pre-Design Phase. The 50 percent design review includes basic

construction specifications, equipment specifications, site/civil drawings, mechanical plan drawings, typical electrical wiring arrangements, and process drawings. The cost estimate prepared from the 50 percent design review documents is evaluated to determine if the design scope should be revised to accommodate project budget constraints and/or determine if additional funding is required. As design activities progress, the accuracy and reliability of the cost estimates increases.

The 90 percent design review documents also includes electrical and structural specifications and drawings, and the bidding documents. Design consultants perform a cross-check of the 90 percent design review documents to ensure that they are substantially complete, coordinated, and accurately cross-referenced. The 90 percent design documents are reviewed by Ecology and the Washington State Department of Health (WDOH) to ensure that the project conforms to state regulations governing wastewater treatment, water reclamation, and water reuse. The review agency comments are incorporated into the final design. Construction schedules and cost estimates are also revised as needed during the 90 percent design review.

DE2. Permitting and Public Involvement

The second step in the Design Phase involves permitting and public involvement. After 50 percent design documents are complete, the reclamation facility site is appraised and KCDNR negotiates a price for the property with the owner. After the 90 percent design documents are complete, they are submitted to the appropriate agencies for environmental permitting. After submitting the documents, final permitting should be completed and governance issues should be finalized.

Although less intensive than earlier phases, public involvement activities during this phase include periodic meetings with the advisory committee, particularly, if changes to routes or sites are required and community input or buy-in is needed as the design proceeds. Appropriate groups and stakeholders are informed regarding permit specifics, schedules, etc., and planning for special events such as when a groundbreaking ceremony will begin. Contact with potential reclaimed water users may increase during this phase.

CONSTRUCTION PHASE (CP)

When design documents are complete, the project can proceed to the Construction Phase. The Construction Phase is the execution of the construction contract between the Owner (KCDNR) and the Contractor. In general, construction contracts for a water reclamation project are anticipated to include the same basic steps and to vary in duration from 24 to 29 months.

CP1. Bid and Award

Most public works construction contracts are awarded via a competitive bidding process. The bid and award step begins with a public notice of the Owner's request for bid proposals and is complete when the contract is awarded to a Contractor. Contractors use the bid period to prepare their bids and to resolve questions or issues associated with the contract requirements. At the end of the bid period the construction contract is usually awarded to the lowest responsive bidder. KCDNR verifies that the apparent lowest responsive bidder

does not wish to withdraw its bid and ensure that any bid protests have been satisfactorily resolved before the construction contract is awarded.

CP2. Construction

Following the Notice-of-Award for the construction contract, the Contractor that was selected awaits a Notice-to-Proceed from King County. The duration between Notice-of-Award and Notice-to-Proceed is often four weeks or more. Construction and installation activities commence shortly after the Contractor receives the Notice-to-Proceed.

CP3. Start-Up and Training

After installation of equipment is complete and the facilities are ready operation, start-up and training activities begin. Equipment and systems are first tested and operated to ensure that they function as required for operation of the facility. Staff who will be responsible for operating the facilities receive training on the operation and maintenance (O&M) of the equipment and systems comprising the facilities. Start-up and training are typically specified as part of the construction contract.

CP4. Commissioning

When start-up and training activities have been satisfactorily completed, responsibility for O&M of the equipment and systems is transferred to the staff who will be responsible for operating and maintaining the facilities on a permanent basis. The period following this transfer of operating responsibility is the commissioning period. The commissioning period provides the Owner with a final opportunity to determine if the equipment and systems operate correctly and that there are no defects in construction or equipment. During the commissioning period the Contractor is responsible for repairing or replacing defective equipment or defects detected in the construction work. At the end of the commissioning period, the operations staff has complete responsibility for O&M of the equipment and system. Installation of equipment and systems is considered substantially complete at the end of the commissioning period and the Contractor is paid for completion of the system and/or equipment installation.

CP5. Reclaimed Water Delivered

Delivery of reclaimed water can begin after the systems and equipment required for treatment, reclamation, distribution, and application have successfully completed the testing during the start-up and training periods. It is likely that some equipment or systems may undergo their commissioning period concurrent with the first delivery of reclaimed water from the project. The supply of reclaimed water may not be reliable until all facilities comprising the project have completed the commissioning period.

CP6. One-Year Certification

One-year certification programs are an accountability measure required for most wastewater type project funding programs. At the end of the first year of operation, the capabilities of the constructed facilities are compared with the treatment and production capacities that were proposed for the facilities. The one-year certification program verifies that the grant funding has accomplished the goal for which it was provided.

CP7. Public Involvement

Public involvement activity will intensify again during the construction phase and close coordination between the public outreach and technical team members is required. Beginning with the groundbreaking and ending with the plant dedication, construction support is integral to continued project success. A project "hotline" can be established and advertised, regular updates are provided via newsletter, web site and briefing and notices regarding construction activity are provided to affected residents, businesses, schools and legislators. Media interest is high during construction, so tours, briefings, and information can be provided in various types/formats to local and regional media.

Construction support activities also include day-to-day interaction with individuals regarding concerns they have over impacts, including noise, dust, traffic, etc. A dedication celebration culminates this phase and includes local legislators, King County representatives, the project advisory committee members, stakeholder agencies, and others, especially those inconvenienced by construction activity.